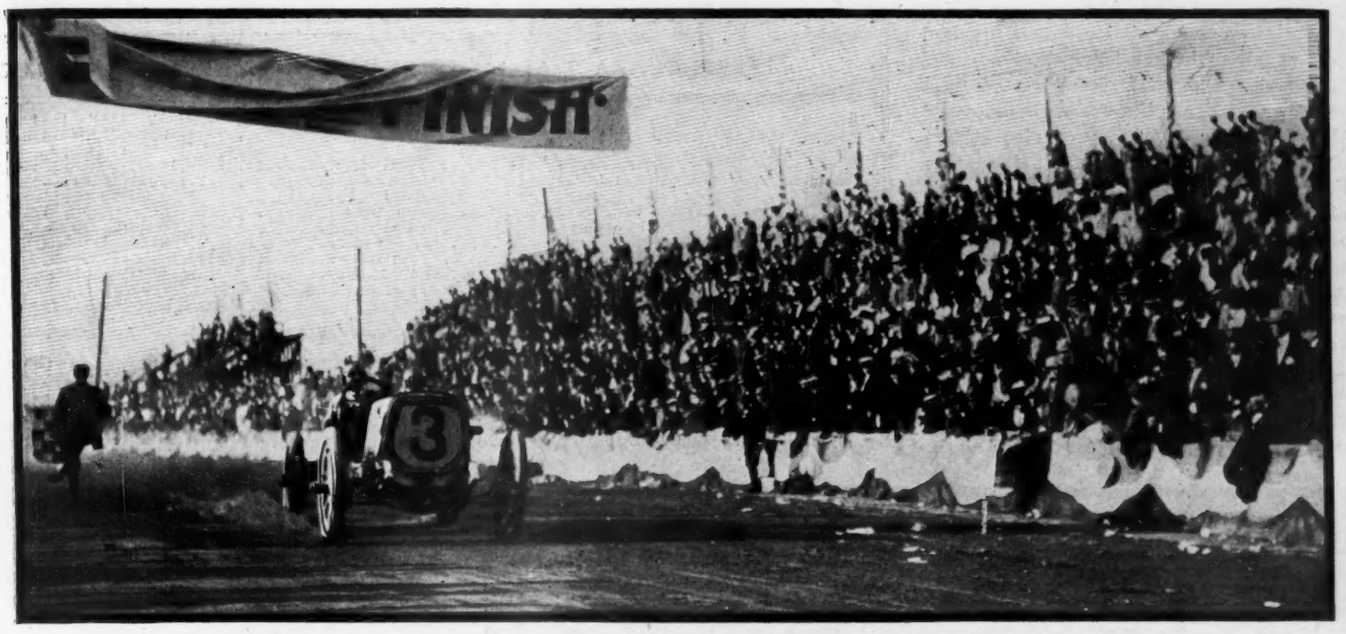
Vol. XVIII, No. 22 Chicago, December 1, 1910 $3.00 Per Year

MOTOR AGE

LOZIER SMASHES AMERICAN ROAD RECORDS



Teddy Tetzlaff in Lozier Finishing Ferris Cup Race, in Which He Averaged 73.22 Miles an Hour

LOS ANGELES, Cal., Nov. 24—Teddy Tetzlaff, a Los Angeles boy, driving a Lozier car, made motor history on the Santa Monica course today when he piloted his dashing white racer to victory in the 151.5 mile stock car race and followed this without leaving the course by winning over a field of eight in the 202.006 mile free-for-all. In the first race he averaged 73.22 miles an hour, a new American record, and in the free-for-all his average was 71.31.

Bert Dingley and the Pope-Hartford finished second in each race, averaging 65.59 in the free-for-all and 69.93 in the stock car race. This car was a contender in both events, but toward the finish of the free-for-all the Lozier drew away and won by two laps. The course measured 8.4 miles around. The Lozier's time in the stock event was 2:04:10⅘ and in the free-for-all 2:49:59. The Pope's time was 2:10:00⅗ and 3:04:47⅕.

This record stamps the Santa Monica road race course as one of the fastest in the world and also brought into the national limelight a driver not known outside of his home city. Tetzlaff displayed remarkable judgment and rare nerve by

Lozier Wins Ferris Cup Road Race at 73.22 m. p. h. and Free-for-all at 71.31 — Duro Takes 231-300 Class and Maxwell the 161-230 Class

WORLD'S FASTEST RACES

Race	Car	M. P. H.
Florio	Fiat	74.3
Ferris	Lozier	73.22
L. A. free-for-all	Lozier	71.31
French Grand Prix	Fiat	70.61
Savannah Grand Prize	Benz	70.55

averaging 3 miles an hour faster than the winner of the grand prize race at Savannah and wins the right to rank with the foremost race drivers of the country.

It was a perfect race, run under perfect conditions. The course was in good shape and the weather could not have been better. Southern California upheld its claim as God's own country by furnishing a Thanksgiving day as delightful as the most perfect spring morning. A bright sun forced its way through the early morning fog and a refreshing breeze off the Pacific 100 yards away made the weather perfection itself. The crowd is estimated at 75,000, but the people did not wait for the perfect weather. At least half were at or near the scene of the race the night before, as the first event, the small-car race, was scheduled to start at daylight. The fog delayed the start until 7 o'clock.

The two small-car races were put on together. In the 161-230 class the Maxwell, driven by Fancher, won by itself at an average of 59.11 miles per hour, being the only car running at the finish. In the 231-300 class the Duro, a Los Angeles-made car, well driven by J. McKeague, won after a hard struggle in which the lead was held by three other cars at different stages of the race. The Duro averaged 59.96 miles per hour.

There was not a single accident to mar the sport. On the first round of the little car race George Clark in trying to take the Nevada avenue board turn too fast, went off the course and was unable to continue, but no one was injured. No other cars in either race met with accidents. The only thing of a serious nature was the breaking of a tree upon which

BERT DINGLEY IN POPE-HARTFORD THAT FINISHED SECOND IN TWO RACES

several boys were sitting. This resulted in a couple of broken legs.

The parade of motor cars started from Los Angeles, 14 miles from the scene of the race, early Wednesday evening. There was no let-up and throughout the night the chugging of motors continued. By midnight all the desirable parking space was occupied and 10,000 people were within a mile of the grandstand. Preceding the race and beginning at midnight was what was termed a night of revelry. There were entertainments of all kinds and when things grew dull the crowd provided its own amusement. After dancing on an immense platform for several hours the fog and the chill morning air proved too much for the awaiting spectators and they proceeded to demolish said dance hall and burn it up in several gigantic bonfires. The special police who dared to interfere were threatened with a ducking in the ocean and retired. The beach resorts for miles along the coast were crowded throughout the night and those who could not find better accommodations slept in the sand and under the palm trees.

FERRIS CUP RACE AT 151 MILES, WHICH WAS WON BY THE LOZIER.

Car	Driver		1 8.4m	2 16.8m	3 25.2m	4 33.6m	5 42.0m
		Total time	7:16	14:07	20:58	27:48	34:38
Lozier	Tetzlaff	Lap time	.....	6:51	6:51	6:50	6:50
		Total time	7:21	14:19	21:10	28:01	34:53
Pope-Hartford	Dingley	Lap time	.....	6:58	6:50	6:51	6:51
		Total time	8:42	17:05	25:20	33:33	41:45
Franklin	Seibel	Lap time	.....	8:23	8:14	8:13	8:11
		Total time	8:30	16:59	28:00	36:03	44:43
Knox	Brown	Lap time	.....	8:29	8:01	8:03	8:39
		Total time	8:42	20:22	51:12		
Apperson	Ryall	Lap time	.....	11:40	30:50	Out—	

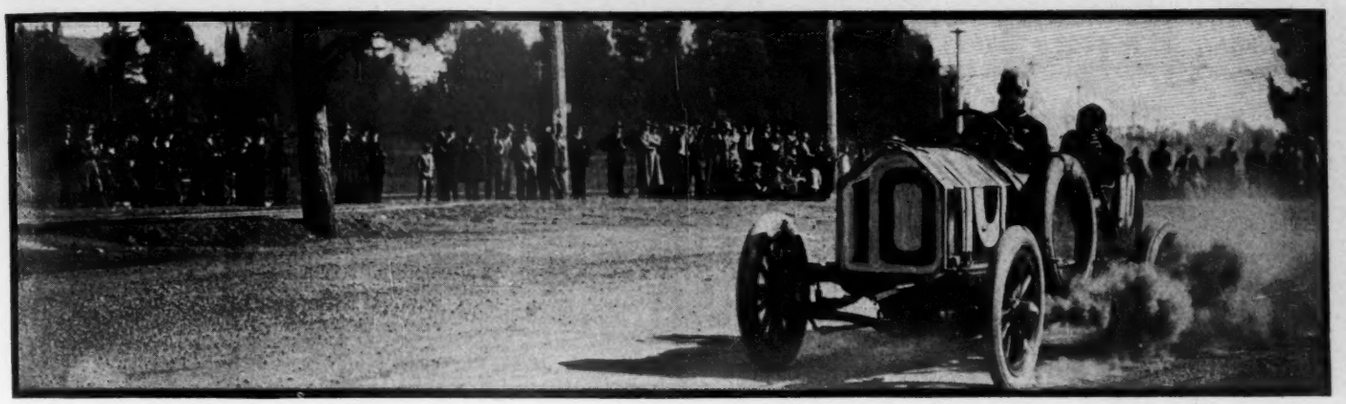
VIEW OF START OF SANTA MONICA ROAD RACES

The heavy stock car race started at 9:15, Jimmy Ryall and the Apperson being the first to get the word. One minute later Bert Dingley was on his way with the Pope, followed by the Lozier, Knox and Franklin.

Dingley overhauled Ryall on the first lap, but the Lozier made the fastest time on this round, completing the first circuit in 7:16, for an average speed of 69 miles an hour from a standing start. Tetzlaff began hitting off what was to prove his regular pace in the second lap, making the round in 6:51⅕ for an average of a fraction over 73. The Pope was also hitting it up, the time for the second lap being 6:58. This gave the Lozier a lead of 11⅕ seconds when they had both passed the stand on the third circuit. The Apper-

TABULATED REPORT OF TIMERS IN THE FREE-FOR-ALL RACE AT 202 MILES RUN AT LOS ANGELES.

Car	Driver		1 8.4m	2 16.8m	3 25.2m	4 33.6m	5 42.0m	6 50.5m
		Total time	7:15	14:05	21:40	27:47	34:37	41:25
Lozier	Tetzlaff	Lap time	.....	6:49	6:59	6:43	6:50	6:48
		Total time	7:21	14:21	21:19	28:21	35:10	43:56
Pope-Hartford	Dingley	Lap time	.....	6:59	6:57	7:02	6:49	8:45
		Total time	9:05	17:25	25:11	32:53	40:40	48:49
Knox	Nikrent	Lap time	.....	8:18	7:46	7:42	7:46	8:09
		Total time	7:12	14:16	21:14	33:25	42:12	48:51
Flat	Dearborn	Lap time	.....	7:03	6:58	12:10	8:47	6:39
		Total time	10:56	21:01	31:06	41:17	51:18	61:14
Ohio	Hemwood	Lap time	.....	10:04	10:05	10:10	10:01	10:05
		Total time	10:25	19:16	27:49	36:21	44:55	53:24
Apperson	Ryall	Lap time	.....	8:51	8:32	8:32	8:33	8:29
		Total time	7:44	15:02	22:19	29:37	36:55	
Isotta	Soules	Lap time	.....	7:22	7:17	7:18	7:18	.....
		Total time						
Only	Van Valin	Lap time	Piston stuck. No water					



DEARBORN IN FIAT, WHICH MADE FASTEST LAPS IN THE FREE-FOR-ALL

AT 73.22 MILES PER HOUR, CREATING NEW AMERICAN ROAD RECORD

6 50.5m	7 58.9m	8 67.3m	9 75.7m	10 84.1m	11 92.5m	12 101.0m	13 109.4m	14 117.8m	15 126.2m	16 134.6m	17 143.0m	18 151.05m	M.p.h.
41:27	48:16	55:05	61:54	68:40	75:30	82:19	89:10	97:07	103:54	110:39	117:24	124:10⅘	73.22
6:49	6:49	6:47	6:49	6:46	6:50	6:49	6:51	7:53	6:47	6:45	6:47	6:46	
41:58	50:07	57:01	63:55	70:52	77:47	94:45	91:42	100:52	109:36	116:21	123:10	130:00⅘	69.93
7:05	8:09	6:54	6:54	6:57	6:55	6:58	6:56	9:10	8:34	6:55	6:49	6:50	
49:52	57:59	66:12	74:21	82:34	90:46	98:53	106:57	115:05	123:11	131:20			
8:07	8:07	8:12	8:09	8:13	8:11	8:07	8:04	8:08	8:05	8:09	Race called		
Out—Broken water connection													
Broken oil pump													

son had trouble on the back stretch on the second lap and fell to the rear. The first was the Franklin's slowest lap, 8:42. Its fastest was 8:04⅕. Seibel drove a consistent race throughout in the air-cooled car and finished third.

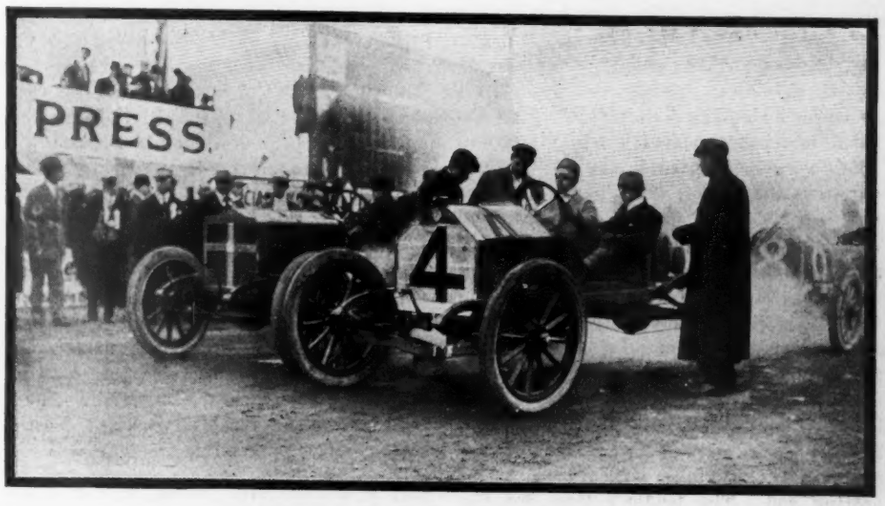
The fight soon narrowed down to the Lozier and Pope and these two fought it out for round after round. But it was Tetzlaff who was making the fastest laps and each round saw Dingley a few more seconds to the bad. The Apperson had more trouble in the third and after a long delay stopped in the pit with a broken oil pump. It did not return to the race.

At the close of the fourth lap the Lozier was 12⅘ seconds in front and by the seventh lap this had been greatly increased, as the Pope was forced to stop after the seventh to change a rear tire. It required 45 seconds for the change and getaway. The Lozier now had a lead of 1 minute 55⅘ seconds. The Knox retired with engine trouble after five laps and the Franklin moved into third position. With half of the eighteen laps finished the Lozier was over 2 minutes ahead. The tenth was the leader's fastest lap up to that time, being made in 6:46.

A great cheer went up from the Pope-Hartford supporters in the fourteenth lap when the Lozier stopped for a tire just after crossing the line. The Michelin crew made a great change, the old tire being off and the new one on in 30 seconds.

The fourteenth proved a bad lap for the Pope, a stop being made to change both rear tires. The Pope again stopped on Nevada avenue on the fifteenth lap and lost over a minute. From there on it was the Lozier by minutes and Tetzlaff kept the car well in hand and won handily by 5:49⅘. The Franklin was still running and was stopped after the completion of the sixteenth lap.

The Lozier and Pope did not leave the



LINING UP FOR START OF SMALL-CAR RACE

WHICH WAS WON BY TETZLAFF IN LOZIER, WITH DINGLEY IN POPE-HARTFORD SECOND

7 58.9m	8 67.3m	9 75.7m	10 84.1m	11 92.5m	12 101.0m	13 109.4m	14 117.8m	15 126.2m	16 134.6m	17 143.0m	18 151.5m	19 159.9m	20 168.3m	21 176.7m	22 185.1m	23 193.5m	24 202.0m	M.P.H.
48:15	55:03	61:49	68:40	75:25	82:12	88:56	95:46	102:36	113:59	120:54	127:40	134:26	141:10	147:54	154:42	161:31	169:59	71.31
6:49	6:48	6:46	6:51	6:45	6:46	6:44	6:49	6:51	11:23	6:55	6:45	6:45	6:44	6:44	6:48	6:49	8:27	
50:59	58:04	65:12	72:16	79:23	98:54	106:03	112:58	119:54	126:41	133:35	142:08	149:09	156:21	163:24	170:23	177:04	184:47⅕	65.59
7:03	7:05	7:08	7:04	7:07	19:31	7:09	11:23	6:56	6:47	6:54	8:23	7:01	7:11	7:03	7:59	7:04	7:06	
56:53	64:48	72:43	80:34	88:04	94:07	102:05	116:16	118:25	127:30	135:51	144:13	152:17	160:36	168:48	177:02	Running when race called		
8:04	7:55	7:55	7:51	7:30	8:03	7:57	8:11	8:09	9:04	8:20	8:22	8:04	8:18	8:12	8:14			
55:29	62:01	68:37	75:19	81:56	88:31	95:03	101:33	108:01	114:43	127:04								
6:37	6:32	6:36	6:41	6:36	6:35	6:32	6:29	6:28	6:42	12:20	Out—Broken crankcase							
71:28	81:43	91:49	101:57	112:00	122:12	132:18	142:23	172:47										
10:14	10:15	10:05	10:07	10:02	10:12	10:06	10:05	30:24	Running when race called									
61:54	70:24	79:02	97:13	105:19	122:17													
8:28	8:32	8:37	18:11	8:06	16:57	Out—Engine trouble												
Out—Broken connecting rod																		

RACE FOR STOCK CARS IN 231-300 CLASS, WON BY McKEAGUE IN DURO, CALIFORNIA-MADE CAR

231-300 CLASS—101.004 MILES

Car	Driver		1 8.4m	2 16.8m	3 25.2m	4 33.6m	5 44.0m	6 50.5m	7 58.9m	8 67.3m	9 75.7m	10 84.1m	11 92.5m	12 101.02m	M.P.H.
Duro	McKeague	Total time	8:13	20:00	29:04	39:47	48:30	57:47	65:58	74:09	83:48	91:59	99:11	101:04⅝	59.96
		Lap time		11:46	9:04	10:43	9:43	8:17	8:11	8:11	9:39	8:11	7:12	8:09	
Maxwell	Smith	Total time	9:12	23:08	31:15	39:10	47:06	55:19	63:22	71:44	79:55	87:58	95:58	104:15	58.11
		Lap time		13:56	8:07	7:55	7:54	8:13	8:03	8:22	8:13	8:03	8:00	8:17	
Petrel	Arthur	Total time	10:25	19:31	29:22	39:45	48:45	57:56	67:20	76:25	86:27	95:36	105:36	118:48	51.01
		Lap time		9:06	9:51	10:23	9:00	9:10	9:25	9:04	10:02	9:09	10:00	10:10	
Mercer	Greer	Total time	9:32	18:00	27:58	36:28	45:17	54:39	62:22	71:49	80:22	89:01	Stripped		
		Lap time		8:28	9:58	8:30	9:39	9:22	8:29	9:27	8:33	8:39	driving pinion		
Mitchell	Bigelow	Total time	8:53	17:29	25:59	34:29	42:56	51:26	59:58	68:29	77:00	Out			
		Lap time		8:36	8:30	8:30	8:27	8:30	8:31	8:31	8:43	Engine trouble			
Buick	Nikrent	Total time	9:17	19:35	27:44	39:07	Out								
		Lap time		10:18	8:09	11:33									
Cutting	Clark	Total time	Ran into tree on first lap												
		Lap time													

course between the 151-mile race and the free-for-all. Both completed an extra lap and drew up at the tape. A hasty examination was made of the cars and the spark plugs were taken out and cleaned on the Lozier. They also took on fuel and oil before starting again.

At 12:05 the Apperson was given the word in the free-for-all, but came to a stop within 100 yards of the start. After a hasty bit of work on the engine the Jackrabbit was off again. The Pope was again first to show around the Ocean Front turn. Then came the Lozier and after a lapse the Apperson, Knox, Fiat and Isotta shot by a hundred feet apart.

The one-cylinder Only was also a starter, but the piston froze on the first lap and it never passed the stand. The Fiat, F. Dearborn driving, completed the first lap in the fastest time, 7:12. The Lozier's second lap was in 6:49 and as the Fiat took 7:03⅝ Tetzlaff went into the lead, never to be headed. The Fiat picked up on the third lap, but the fourth was disastrous. Engine trouble caused a stop and 12:10⅘ was the time of the lap. The Italian car was again delayed on the fifth, but from then on until the disastrous finish in the seventh lap Dearborn drove a thrilling race and the car performed speed wonders, making the fastest laps of the race and averaging at times laps at 78 miles an hour.

At the end of the sixth lap the Lozier led the Pope by 1 minute 30 seconds. The Isotta, Soules driving, went out of the race in the seventh lap with a broken connecting rod. The leader's time for the first 85 miles was 69 minutes 41 seconds.

The terrific pace began to tell on the Pope and its laps had been getting over the 7-minute mark. In the twelfth lap Dingley drew up with a broken valve spring and Mechanician Machris made a remarkable cool and quick repair. The Fiat, which had been traveling at a terrific pace, moved into second hole. At the end of the thirteenth lap the Fiat was 6 minutes behind the leader and gaining with every lap. Dearborn drove the fifteenth lap in 6:28, a speed of a fraction over 78 miles an hour.

The Lozier stopped in the sixteenth lap to take on oil and change a rear tire. With sixteen laps completed the Lozier's lead had been cut down to 47 seconds and Dearborn was driving like mad. But the seventeenth brought gloom to the Fiat rooters. After a long delay the big car was seen coasting down to the stand and it pulled up with a broken crankcase. The Lozier won with ease from there on.

KANSAS CITY SHOW SITUATION

Kansas City, Mo., Nov. 27—There was an ineffectual attempt last week to fuse the two factions of dealers in Kansas City. A peacemaker appeared in the camp of the Kansas City Automobile Dealers' Association and moved it to pass a resolution approving of an amalgamation with the Motor Car Trade Association, composed of former members of the old association. The split occurred a year ago when the old association was considering the election of a show committee. Subsequently both organizations held motor shows in Convention hall and both now are preparing for separate expositions next February. The resolution passed by the Kansas City Automobile Dealers' Association, in which the forty members gave assent to a proposition to dissolve the association and join with the other dealers in a new harmonious society, was printed in all of the papers in Kansas City, but brought no response from the Motor Car Trade Association, so preparations for both shows are going on. The sixth annual show of the Kansas City Automobile Dealers' Association will be in Convention hall the week of February 27. The second exhibition of the Motor Car Trade Association will be in the same place just 2 weeks previous. Both sides have announced that they will build a secondary arena over the balcony of the big hall, just as the Kansas City Automobile Dealers' Association did last year.

HARRISBURG RESULTS

Harrisburg, Pa., Nov. 28—The recent reliability run of the Harrisburg club was a complete success despite the conditions. The trail was 358 miles in length, over rough and narrow roads. Only one car had a perfect score, the No. 3 Pullman, after the technical examination, although ten went clean on the road, No. 9 Reo, No. 17 Klinekar, No. 14 Velie, No. 1 Pullman, No. 21 Pullman, No. 16 Columbia and No. 3 Pullman surviving this test. The results were:

DIVISION 3A, CLASS 1

No.	Car	Driver	Road	Tech.	Total
9	Reo	Earl Kimmel	0	3	3
10	Everitt	Wayne-Davis	0	13	13
4	Crawford	A. A. Miller	2804	5	2809
	CLASS 2				
17	Klinekar	Vandergrift	0	2	2
13	Warren-Detroit	Kinginger	0	4	4
8	Maxwell	A. Redmond	12	5	17
11	Firestone-Columbus	Rasmussen	withdrawn 1st day		
	CLASS 1, DIVISION 4A				
7	Inter-State	I. W. Dill	withdrawn 1st day		
12	Velie	Thompson	withdrawn 1st day		
15	Maxwell	H. E. Walls	withdrawn 1st day		
	CLASS 2				
14	**Velie**	Rockafeller	0	2	2
22	Pullman	C. Barner	88	19	107
18	Klinekar	Fletcher	withdrawn 2d day		
	CLASS 1, DIVISION 5A				
1	Pullman	Roy Sterns	0	2	2
6	Klinekar	C. C. Farman	0	11	11
2	Pullman	Geo. Ickes	2	36	38
	CLASS 2				
21	Pullman	W. F. Grove	0	19	19
19	Klinekar	W. F. Sieg	26	3	29
	CLASS 1, DIVISION 6A				
16	Columbia	H. Smith	0	3	3
	CLASS 2				
3	Pullman	H. Walker	0	0	0
5	Klinekar	J. A. Kline	8	0	8

RACE FOR 161-230 CLASS CARS IN WHICH MAXWELL WAS THE ONLY SURVIVOR

161-230 CLASS, 101.004 MILES

Car	Driver.		1 8.4m	2 16.8m	3 25.2m	4 33.6m	5 42.0m	6 50.5m	7 58.9m	8 67.3m	9 75.7m	10 84.1m	11 92.5m	12 101.2m	M.P.H.
Maxwell	Fancher	Total time	8:35	17:50	27:05	36:22	44:59	54:05	62:25	68:56	77:20	85:39	94:08	102:31	59.11
		Lap time		9:15	9:15	9:17	8:37	9:06	8:24	8:27	9:04	8:19	9:09	8:23	
Oakland	Okerman	Total time	9:46												
		Lap time		9:17	Out. Stripped timing gears										
Staver	Fouch	Total time													
		Lap time	Out first lap. Stripped magneto gears												

SENSATIONAL RELIABILITY IN CALIFORNIA

Mitchell and Velie Make Perfect Scores in 48-Hour Run Covering About 1347 Miles

SAN FRANCISCO, CAL., Nov. 26—The first 48-hour endurance run ever held in this state has just been pulled off under the direction of the Oakland Automobile Dealers' Association. Of the eleven gasoline cars that were entered only two—the Mitchell and the Velie—came through with perfect scores. The one electric car, a Columbus, which was entered under separate rules, came up to every requirement, and its work caused great interest. In briefest form, the cars finished as follows:

Mitchell	Perfect score
Velie	Perfect score
Corbin	3 points
Winton	4 points
White	5 points
Maxwell	17 points
Buick	18 points
Ford	361 points
Moon	762 points
Cartercar	2,320 points
Reo	Withdrawn

The contest was held over what is known as the San Leandro triangle, in Alameda county, across the bay from San Francisco. The course is 54.6 miles in length, and the cars were required to make this distance in two laps. The total of twenty-four laps, with two side trips to Idora Park and back again to the course, made a total distance for the 48 hours of about 1,347 miles. The average speed required was in excess of 28 miles an hour, night and day, yet most of the cars had little difficulty with the time schedule. Their work proved a wonderful tribute to the general perfection with which the car of today is built. The cars were required to check in at controls within a narrow leeway of time each 12 hours. They were allowed to take in water and oil or make repairs only in control. Tire trouble was not penalized.

The Mitchell car, one of the two winners of a perfect score, is an old hand in this annual contest. For the past two seasons Mitchells have been entered in the 24-hour contests which have been held, and in each case perfect scores have been secured. Last year a big seven-passenger car was entered, and it too came out with a clean slate. The Mitchell in the 48-hour test made no attempt to cut deep into the scheduled time, but maintained a steady, consistent pace throughout.

This is also the second season for a perfect score won by the Velie. Last year, over the same course, the car pulled down the red ribbon. The Velie's work has attracted a great deal of attention.

Many and various were the difficulties that brought penalties to the other contestants. The Corbin car perhaps had the toughest tale of hard luck. This car was penalized 3 points for stalling its motor. It was claimed by the entrants of the car that the switch had been kicked over by the official observer, and the observer himself admitted this. There was not a little conflicting evidence in the case, however, and the judges were reluctantly compelled to assess the penalty against the car. The driver of the Corbin at the time was Frank Murray, a young racing pilot, who made a big reputation in California during the past three seasons by his great number of victories on track, hill and road in Buick cars. This marked his first appearance as a Corbin driver, and his hard luck occasioned much regret.

Then the Winton six was penalized for taking in oil outside of control. The Winton made the fastest lap of the course, driven by Harry L. Owesney, manager of the local branch, and in doing this oil was pumped in through a tube from the tonneau. This was held by the judges to be against the rules. The Winton's time for the lap of 54.6 miles was 1 hour 13 minutes 50 seconds. The car was fully equipped in every particular and carried five passengers. After the contest the Winton was taken to the show at Idora park, in Oakland, and the engine was kept running continuously until 10:30 o'clock tonight. It was thus in motion for exactly 1 week without a break.

The White car got 3 points for stalling its motor and 2 points for adjusting its oiler outside of control. The Maxwell had some minor troubles, and the Buick lost 18 points for time consumed in installing a new spring.

The Reo 30 burned its ignition wiring early in the contest and was withdrawn. The Cartercar while traveling at a rapid rate struck some loose gravel and went into a ditch, breaking a wheel. Four hours was lost in replacing this, and the drivers of the car then set out in a desperate attempt to make up what time they could. At the end of the 48 hours they had picked up almost 3 hours of the lost time.

One of the Cartercar's observers proved to be one of the unconscious humorists of the event. "In Centerville," reports he, "Cartercar in colusion with lumber waggin." On the same lap, according to the official, the Cartercar "ran into boy, who dropt bycicle after getting into way; bycicle strictly ignored."

The work of the Columbus electric aroused general favorable comment. It was the first time that an electric has appeared in a contest hereabouts. The car was required to maintain an average speed of 12½ miles an hour—about one-half as severe as the schedule of the gasoline cars—for the 48 hours. The car lost a perfect score only by arriving at the Idora Park control 36 seconds ahead of the scheduled time.

Following is the official report of the judges on the performance of the cars:

Winton—4 points for oiling outside control.

Maxwell—15 points for stopping motor, no adjustment; 2 points for adjustment of oil flow.

Corbin—3 points for stalling motor at High street.

White—3 points for stalling motor at Klink's corner; 2 points for adjusting oiler outside of control.

Reo—Withdrawn on fourth lap.

Moon—502 points, arriving late at controls; 2 points, replacing spark plug; 64 points, repairing broken spring; 64 points, repairing broken spring; 2 points, adjusting carbureter; 68 points, repairing broken spring; 60 points, repairing broken spring. Total, 762 points.

Buick—18 points, installing new spring.

Mitchell—Perfect score.

Ford—280 points, adjustment of cylinders; 3 points, stalling engine at Warm Springs; 2 points, replacing spark plug; 76 points, arriving late at controls. Total, 361 points.

Velie—Perfect score.

Cartercar—290 points, making repairs, engine running; 860 points, making repairs, engine stopped; 1,170 points, arriving late at controls. Total, 2,320 points.

Columbus electric—2 points, arriving at final control 36 seconds ahead.

KNIGHT IN CHICAGO

Chicago, Nov. 30—Charles Y. Knight, inventor of the Silent Knight slide-valve motor, which has been adopted by half a dozen of the leading European manufacturers and who has made his residence in England for the last 3 years, is home for a 3-months' visit, during which time it is expected he will look after the introduction of his motor in America. Mr. Knight is enthusiastic over the motor car situation abroad. The depression which spread over Europe 2 years ago is rapidly disappearing. The Daimler company, which uses his motor, will build more cars next year than ever before. The Panhard company, which is bringing out a new model using the Knight motor, is running throuh 2,500 in the first lot. The Mercedes company in Germany has its first Knight model out, and the Minerva company in Belgium is working to the limit of its factory capacity. Mr. Knight is well pleased with the prospects for a big year with his motor on the other side.

In speaking of the European situation, Mr. Knight stated that the Olympia show this year was the greatest business exhibition that ever has been held in Europe. In spite of the Paris salon, which takes place this month, the show drew more French and continental makers than ever before. He considers that England is today the leading country in Europe in the motor car field. With all European makers the great question is a small motor and a reasonable-sized body. Builders are tired of building a body to carry seven people on a motor that is only intended to carry three or four. All of the makers are trying hard to solve the smoke problem because many of the cities will not let a car on the streets before it has been examined to see if it will smoke. Therefore, it is up to them to devise methods by which the smoke nuisance may be eliminated.

The British export business has increased during the past year with France, Germany, Switzerland and other continental countries. The South Africa business has developed, as has the export trade with Australia and Argentina and Brazil in South America.

MOTOR AGE
Published Weekly by
THE CLASS JOURNAL COMPANY
1200 MICHIGAN AVENUE, CHICAGO
NEW YORK OFFICE
239 West 39th Street
SUBSCRIPTION RATES
United States and Mexico
$3.00 per Year
Other Countries including
Canada $5.00
Entered as Second-Class Matter September 12 1899, at the Postoffice at Chicago, Illinois, under Act of March 3, 1879

Quietness in a Motor Car

QUIETNESS is a quality much sought after in motor cars today. A few years ago many makers imagined that quietness meant muffler efficiency. The better the muffler the more was the sound of the explosion hushed up and consequently the better the car. The days of quietness produced by the muffler are over and there are scores of different muffler designs that all will satisfactorily muffle the explosion. But quietness has not stopped with the perfection of the muffler: There is another quietness that is more desirable in a car than even effective silencing of the exhaust; it is the quietness that comes from the finest workmanship, the quietness that comes from the most scientific design and the quietness that comes from a shrewd study of conditions.

IT is about 3 years since the first real quest after quietness began and it has continued ever since. In those days some concerns recognized some of the big factors that go to produce a quiet car. Engineers at that time realized that if a gearset makes noise, the noise will be increased if the car body is built close around the gearbox, the body serving as a sounding board to take up the vibrations of the gearset and amplify them. This led some concerns to incorporate the gearbox with the rear axle—getting it as far away from the body as possible and positioning it where the noise would be as readily absorbed as possible. Other concerns have used heavy aluminum castings instead of lighter stampings because the light stamping serves as a hollow case and increases the sound. These are but some of the elementary problems on quietness that have been solved in the trend of motor car advance.

IT has, however, been with the motor that much effort has been spent in reducing noise. Readers are familiar with inserting fiber disks or washers in the upper ends of the push rods where they strike upon the lower ends of the valve stems, the fibre absorbing the vibration. Then, too, some makers have inserted springs in the push rod guides to hold the push rod rollers constantly against the camshaft and cams so as to avoid the slapping of the rollers against the cams. A few years ago the valve spring cover was brought out which completely encloses the tops of the push rods as well as the valve springs, protecting them from dirt and insuring better lubrication of them, but also deadening the sound caused when the push rod strikes upon the bottom of the valve stem.

BUT yet the question of silence has only been touched upon. The English makers have adopted the silent chain for driving the camshaft and now continental makers have gone still further and use the silent chain to drive the magneto as well as the camshaft and the water pump. This is all in the quest of quietness. But they go still further. Those pinning their faith to valve-in-the-head motors have realized that noise has been a characteristic of many motors of this type. The noise has been made so close to the top of the bonnet that the metal in the bonnet has in reality increased the noise. To void this covers have been placed over the entire valve operating parts and these covers aid materialy in the lubrication of these parts.

TO study still further the ramifications of the noise problem in motors it is interesting to note that with many makers it is a question of whether it is better to give more power with more noise or less power and more silence. Engineers have long since admitted that the shape of the cam is a determining factor in obtaining power as well as in obtaining noise. Certain cam designs will give high power but are too noisy, whereas other cams are very quiet but do not give sufficient power, the result being that the engineer has had to select a middle course, one in which the maximum power with the minimum noise has been obtained. This is one reason why the motors on special racing machines are often very noisy, the cams having been designed solely to give power no matter how much the noise.

PERHAPS there is no other part of a car that is a greater offender in the matter of noise than poor gears. Everyone is familiar with noisy timing gears in a motor. In the days when spur gears were used the offense was greater, but now that gears with spiral teeth are employed the noise has been reduced. To go still further the worm has been introduced with apparently no other reason than that of reducing the humming of gears. The motor with the transverse shaft in front is becoming common in Europe and is gaining in America. It employs the worm drive. In rear axles the worm is taking the place of the bevel pinion on the rear end of the propeller shaft; and in chain-driven cars it is being used in the gearbox to transmit to the jackshaft. Where gears must be used as in gearsets concerns have started to specialize on grinding the teeth to remove the high spots and achieve the nearest approach to absolute silence. So it is all through the motor and the transmission system, it is reduce the noise; do it scientifically when you can, and when you cannot then accomplish it in the shortest roundabout.

LAST but by no means least in the quest of noise reduction has been the work of the slide-valve motor. Its introduction has eliminated the noisy poppet valve, the striking of the push rod against the valve stem, the side slap of the push rod and the striking of the push rod roller upon the camshaft. When the slide-valve motor was introduced in England it immediately set other concerns busy in reducing vibration. They are still working, and while accomplishing results it is commendable to know that it is through better design and better workmanship. With many it has been solely a question of business—the noisy car is harder to sell, and is looked upon as being harder on itself.

QUIETNESS is daily becoming a greater factor in the motor car field. In large cities the reduction of noise is today becoming one of the big municipal problems. The heavy two or four-horse dray with its iron shod wheels is a nerve destroyer; the elevated train is a worse offender; and the incessant striking of the horses' hoofs is a constant jargon. With the motor car all of this can be eliminated. The quiet motor and the pneumatic tire give noiseless town. The day will come when freedom from noise will be a requisite the same as freedom from smoking is a requisite in Paris, it being a common sight to see cars standing outside the walls of Paris with the motors running to consume the surplus oil before entering through the gates of the city. Noise reduction must receive more attention, but let it always be scientific and not blind attention. When reducing the noise do it by better design and better workmanship and not by simply smothering the vibration.

GARDEN SHOW WILL ATTRACT MANY MAKERS

NEW YORK, Nov. 28—As the plans become better known, it is evident that the eleventh national show at Madison Square garden, which opens January 7, and continues for 2 weeks, will be the greatest show ever held by the A. L. A. M. Joining with those makers that have always exhibited in the garden, will be almost all the members of the old American Motor Car Manufacturers' Association, who heretofore have exhibited at the Grand Central palace. With the passing by limitation of the A. M. C. M. A., all the members, with the exception of two or three, joined as licensees under the Selden patent, and will exhibit their products at the Madison Square garden show next January.

By reason of this great addition to the list of exhibitors, the whole interior of the garden has had to be reconstructed, involving the use of structural steel to a large extent, but every A. L. A. M. licensee will be cared for. Of the A. M. C. M. A. members that exhibited at the Grand Central palace last year, thirty-seven of them will be at the Madison Square garden. Foreign cars also will be shown, including the Mercedes, Brasier and Hotchkiss.

These new cars that will be seen in Madison Square garden for the first time, during the 2 weeks in January, include: Marmon, Reo, Maxwell, Overland, Premier, Mitchell, National, Jackson, Brush, Regal, Stoddard-Dayton, Hupmobile, Midland, Moline, Moon, Oakland, Ohio, Pullman, Speedwell, American, Amplex, Atlas, Cartercar, Case, Chadwick, Inter-State, Kissel, Buckeye, McIntyre, Marion, Courier, Morgan, Garford, Mack, Rapid, Reliance and Grabowsky. The above are in addition to the old members of the Association of Licensed Automobile Manufacturers, and the importers, the total number of car exhibitors for the big show being sixty-eight.

Practically all of the above cars will be shown also at the national show in the Coliseum in Chicago, early in February; the shows at the garden and the Coliseum being the only manufacturers' exhibitions which are sanctioned by the National Association of Automobile Manufacturers and the Motor and Accessory Manufacturers' Association.

There will be thirty-four separate exhibits of commercial vehicles the second week of the garden show, to say nothing of the exhibits of electric pleasure vehicles, motor cycles and parts and accessories during the same week—the first week, from January 7 to 14, being devoted to pleasure or passenger-carrying motor cars, and parts and accessories. The commercial trucks and wagons that will be on exhibition for the first time at the garden affair include such well known makes as Morgan, Pierce-Arrow, Lozier, Knox,

Sixty-eight Exhibitors of Cars Have Been Booked — Color Scheme for the Palace Show

Hupp-Yeats, Peerless, Hewitt, Autocar, Reliance, Rapid, Sampson, Grabowsky, Lansden, Studebaker, White, Packard, Mack, Alco, General Vehicle Co., Anderson, Buick, Cartercar, Courier, Glide, Franklin, Reo, Brush, Overland, Atlas, Randolph, Garford, McIntyre, Kissel and Brasier.

PALACE SHOW COLOR SCHEME

New York, Nov. 26—When the decorators turn the Grand Central palace over to the promoters of the independent show on New Year's eve, the builder of that auditorium will have difficulty in recognizing his handiwork. The whole interior of the palace is being made into an Italian garden, with the rotunda forming the main court yard. Crimson and cream are the keynotes of the color scheme. At the lower end of the main court yard a loggia is placed with a view of a luxuriant garden beyond. Everywhere the eye may roam this garden effect is carried out. Overhead a crimson canopy, richly embroidered, takes away the sight of rafters and structural iron work. This canopy contains some 15,000 square feet of material. Roped openings will reveal a glimpse of blue sky, allowing soft, mellow light to filter through, the lights being masked so as to produce a moonlight effect. Italian marble and tiling cover all the unsightly posts, not a square inch of the present interior remaining in view.

Even the entrance to the auditorium will be transferred to conform to the general decorative scheme, a wrought iron porte cochere done in Italian style being the first thing to greet the visitor's eye on Lexington avenue.

In Motor Age, issue November 10, page 23, was published a list of the palace show exhibitors, and the following are the additional car manufacturers who will also exhibit at this show:

C. W. Kelsey Mfg. Co., Crawford Automobile Co., Coleman Motor Car Co., Cass Motor Truck Co., Victor Motor Truck Co., Otto Motor Car Co. of New York, Only Car Co., Alpena Motor Car Co., Henry Motor Car Sales Co., Correja Motor Car Co., Gaylord Motor Car Co., Otto F. Rost, Geneva Wagon Co., Richard B. Darre, De Tamble Motors Co., L. M. Hartman Sales Agency, J. M. Cunningham & Sons Co., Oliver Motor Car Co., Maytag-Mason Motor Co., Sage & Creighton, Veile Motor Vehicle Co., Colt-Stratton Co., Flanagan Motor Car Co.

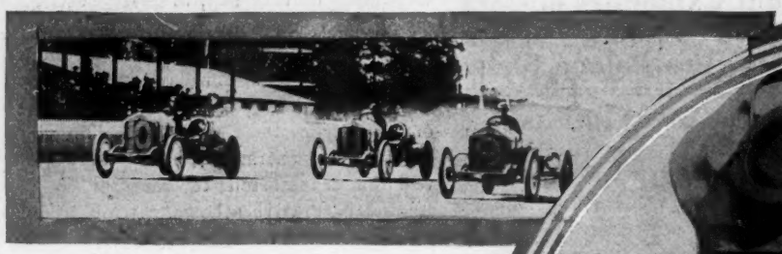
ONE SHOW IN MILWAUKEE

Milwaukee, Wis., Nov. 28—Milwaukee will have only one motor show in 1911. Up to a few days ago the prospects were for two shows, the first under the auspices of the newly organized Milwaukee Automobile Dealers' Association, and the second under the auspices of the Milwaukee Automobile Club, which has conducted two successful shows. The dealers' association is the outgrowth of the opposition offered to the club show in February, 1910, when fourteen representative agents held private exhibitions and refused to join the club's exhibitors. The association stole a march on the club by leasing the Auditorium for the week of January 15. The club held an option for the use of the big exhibition hall during the week of February 13, this date being selected because it is the week following the Chicago pleasure car show, from which it draws considerable business. It was well known that Milwaukee hardly could support two shows and that the dealers were powerful enough to make the club's show the lesser of the two. After some negotiation, a committee of the club and another of the dealers agreed upon one show, to be held during the week of January 15, or at the same time as the Detroit show. The show will be officially under the auspices of the dealers' association, but with the official co-operation of the club, which will participate in the earnings. Frank J. Edwards, the Milwaukee Kisselkar representative, is chairman of the show committee. Bart J. Ruddle will manage the show. While no definite opening and closing dates have been set, it is believed that the show will open on Monday night, January 16, and close on the following Saturday or Sunday night.

Coming Motor Events

December 1-3—Show at Peoria, Ill.
December 3-18—Annual salon of Automobile Club of France.
December 25-26—Motordrome meet, Los Angeles, Calif.
December 31-January 7—American Motor Car Manufacturers' Exhibit Association show, Grand Central Palace, New York.
January 7-21—Eleventh national show at Madison Square garden, New York, under the auspices of the Association of Licensed Automobile Manufacturers, 7 East Forty-second street, New York; Merle L. Downs, secretary.
January 14-25—Annual Belgian show, Brussels.
January 14-28—Annual show of Philadelphia Automobile Dealers' Association.
January 16-21—Tenth annual show of Detroit Automobile Dealers' Association, Wayne pavilion, Detroit, Mich.
January 16-21—Show at Milwaukee, Wis., under auspices of the Milwaukee Automobile Dealers' Association.
January 28-February 4—Annual Chicago show of N. A. A. M., pleasure cars.
February 6-11—Annual Chicago show of N. A. A. M., commercial cars.
February 13-18—Show at Washington, D. C.
February 14-19—Annual Show of Motor Car Trade Association, Kansas City, Mo.
February 15-18—Show at Grand Rapids, Mich.
February 18-26—Annual Minneapolis show in National Guard Armory.
February 20-25—Show of Cincinnati Automobile Dealers' Association.
February 20-26—Show of Omaha Automobile Association at Omaha, Neb.
February 27-March 4—Fifth annual show of Kansas City Automobile Dealers' Association, Kansas City, Mo.

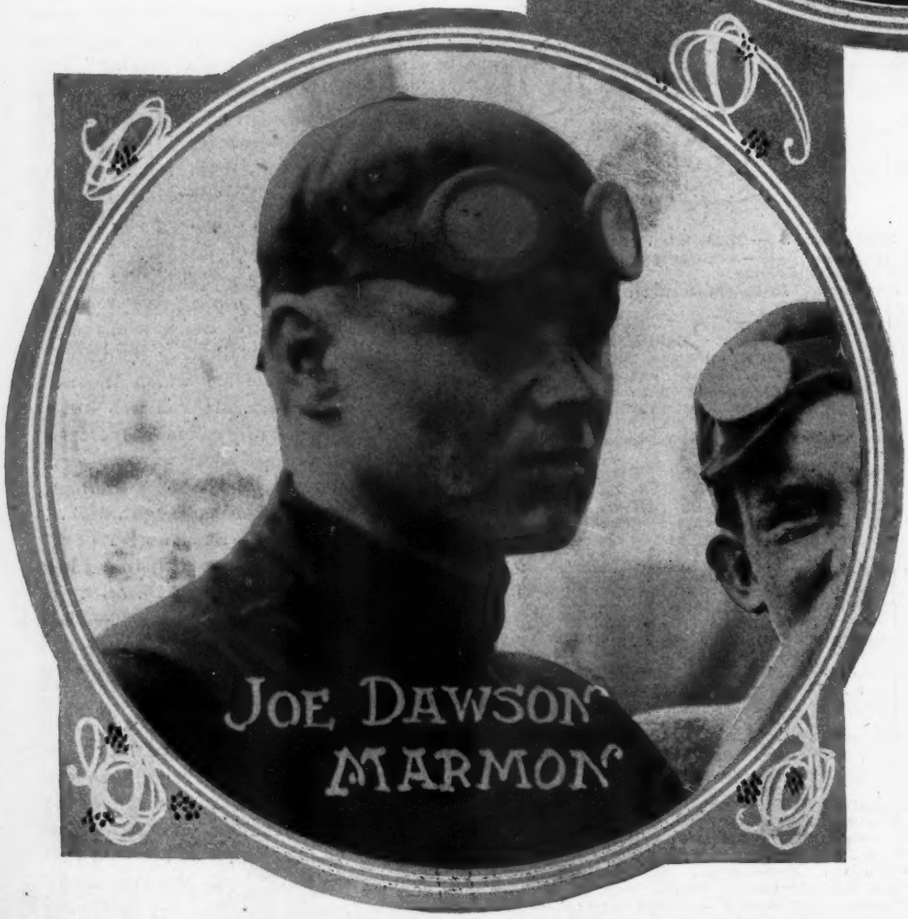
MARMON, NATIONAL, FIAT AND THE BENZ



RAY HARROUN, RETIRING SPEEDWAY KING

BY C. G. SINSABAUGH

SPEEDWAY racing has become a fixture in the American motor world and the success attending the various meets run during the season at Indianapolis, Atlanta and Los Angeles make it certain that in the future the sport on the circular dirt track will be completely overshadowed by the racing on the big motordromes. The season of 1910 winds up with four tracks that are classed as speedways by the American Automobile Association. Indianapolis, the pioneer of them all, is a 2½-mile oval with a surface of vitrified brick; Atlanta has a 2-mile course surfaced with a mixture of clay and Augusta gravel; the one at Los Angeles is a mile circle with a board surface, while Cheyenne's is a natural course 4 miles around which can be fenced off for

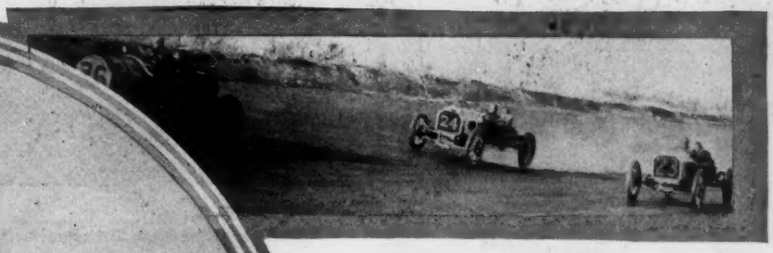


JOE DAWSON, WINNER OF SEVERAL BIG EVENTS

RECORD OF DRIVERS

	Starts	1st	2nd	3rd	Unplaced
Aitken	38	11	5	9	13
Anderson	6	0	0	1	5
Adams	5	0	1	0	4
Bragg	15	9	4	1	1
Burman	22	5	5	1	11
Bisbee	5	0	0	0	5
Barndollar	5	1	0	1	3
Beardsley	1	0	0	0	1
Basle	19	0	2	1	16
A. Chevrolet	3	0	0	0	3
L. Chevrolet	16	7	0	0	9
Clemens	9	1	0	2	6
Clarke	5	0	0	2	3
J. Clemens	6	0	0	1	5
Cook	5	0	0	0	5
Cohen	1	0	0	0	1
Church	1	0	0	0	1
Christie	2	0	0	2	0
Cliquot	1	0	0	0	1
Candler	1	1	0	0	0
Dawson	21	8	6	3	6
De Palma	20	10	3	4	3
Davis	6	0	1	0	5
Dererson	1	0	0	0	1
Disbrow	3	0	0	0	3
W. Endicott	18	3	1	4	10
H. Endicott	9	0	0	4	5
Edmunds	7	2	0	0	5
Ellis	4	0	0	0	4
Emmons	4	2	0	0	2
Fox	7	0	1	1	5
Frayer	10	1	1	0	8
Faulkner	1	0	0	0	1
Fritzsch	4	0	0	0	4
Free	2	0	0	1	1
Grant	3	2	0	1	0
Gelnaw	13	1	0	3	10
Greiner	20	4	3	4	9
Harroun	45	15	10	6	14
Hearne	11	5	1	3	2
Hughes	7	0	0	1	6
Heinemann	7	1	2	1	3
Herr	3	0	1	0	2
Herreshoff	2	0	1	0	1
Hanshue	6	0	2	1	3
Harding	5	0	0	2	3
Hertmeyer	1	0	0	0	1
Harnell	1	0	0	0	1

AMONG SPEEDWAY STARS OF SEASON ENDING



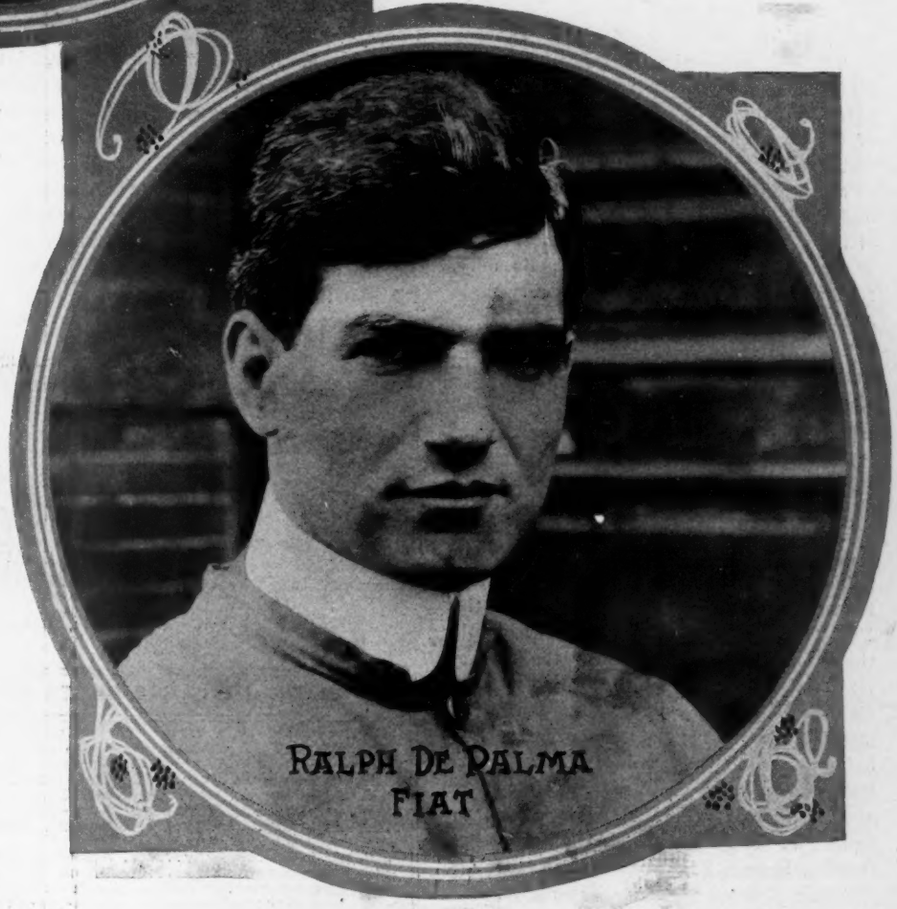
JOHNNY AITKEN, HARROUN'S GREATEST RIVAL

racing purposes when so desired. Cheyenne, however, has not cut much figure in the racing world, although early in the year Oldfield put it on the map with several sensational speed performances.

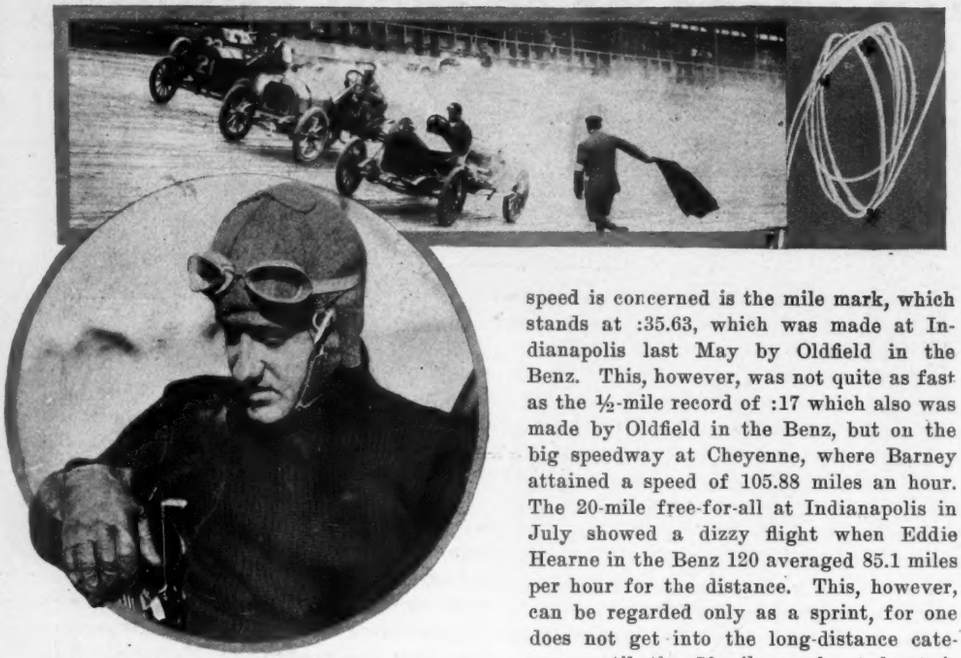
Indianapolis and Atlanta each has promoted three meets this year, but the honors belong to the Hoosiers because all three of their speed tourneys have been of national importance, while one of Atlanta's was merely a local affair. Los Angeles blew open the season last May, and at that time had several drivers of national importance like de Palma, Bragg, Harroun, Robertson and Oldfield, who gave the meet national prestige. Los Angeles has one more meet billed for this year, set for the Christmas holidays, but it hardly is likely that the entry list will show class enough to entitle it to consideration in reviewing the work of the drivers and cars

IN SPEEDWAY MEETINGS

	Starts	1st	2nd	3rd	Unplaced
Kincade	16	3	4	2	7
Knight	5	0	2	0	3
Kerscher	14	2	4	4	5
Keene	1	0	0	0	1
Keefer	2	0	1	1	0
Kelly	2	0	0	1	1
Livingstone	15	1	6	5	3
Lytle	11	5	3	0	8
Lynch	9	0	2	1	6
Lescault	4	1	1	0	2
Linthwaite	5	0	0	3	2
Matson	6	1	2	2	1
Miller	15	0	1	2	12
Merz	22	0	5	4	13
Motsinger	4	0	0	0	4
Moore	4	0	0	0	4
McCormick	4	0	0	3	1
Marquis	9	1	1	4	3
McIntyre	1	0	0	0	1
McKinstry	3	0	0	0	3
J. Nikrent	10	5	2	1	2
Oldfield	18	7	3	2	6
Pearce	14	1	5	1	7
Pratt	1	1	0	0	0
Phillips	2	0	0	0	2
Mort Roberts	8	3	0	1	4
Mont Roberts	3	0	1	1	1
Robertson	9	3	3	0	3
Rutherford	6	1	0	1	4
Reed	2	1	0	1	0
Strang	3	0	0	1	2
Schiefler	2	0	0	0	2
Schwitzer	4	0	0	0	4
Stinson	9	0	0	2	7
Sutcleffe	5	1	0	0	4
Smith	1	0	1	0	0
Smith-H.	4	0	2	0	2
Sterns	1	0	1	0	0
Siebel	1	0	0	0	1
Siefert	4	0	2	0	2
Stoddard	7	0	3	0	4
Tousey	7	0	5	1	1
Tinkler	3	0	0	0	3
Wilcox	11	4	3	2	1
Wishard	4	1	0	1	2
Wade	5	0	1	2	2
Wilt	3	2	0	0	1
Zengel	3	0	0	0	3



RALPH DE PALMA, STAR IN TIME TRIALS ON SPEEDWAYS



CALEB BRAGG, FIAT, ONE OF THE BEST SPRINTERS OF YEAR

for the big speedway season of 1910. In this review of the season which is presented herewith, Motor Age has taken into consideration six meetings—all three at Indianapolis, two of Atlanta's three and the May meet at Los Angeles. The second meet at Atlanta and the one held at Los Angeles last week are not figured in because they hardly could claim standing as meets of national importance. In these meets 102 different drivers have participated, and in all fifty-five different makes of cars have been represented in the contests. Only three of the pilots have driven at all of the three tracks—Harroun, Bragg and de Palma—while nineteen have driven at two of the spedways; forty-two different drivers have raced at Indianapolis only, fourteen at Los Angeles, and twenty-three at Atlanta.

The past season has seen a general shattering of records, and all but fourteen of the fifty-eight that are recognized by the American Automobile Association have been altered in 1910. The count at the present time credits Indianapolis with twenty of the fifty-eight records, Atlanta with eighteen, Los Angeles with nineteen and Cheyenne with one. The Marmon holds the lion's share of these with sixteen to its credit, the Buick has eleven, the Fiat ten, Benz five, the Knox two, while the others are divided among the Lozier, National, Rainier, E-M-F, Simplex, Herreshoff, Cole and Isotta. Harroun holds more of the records than any other driver, being credited with nine; Oldfield six, Dawson seven, Louis Chevrolet, Robertson and de Palma five each, while others to figure on the list are Aitken, Bragg, Hearne, Horan, Kincade, Burman, Strang, Knipper, Nelson, Roberts, Nikrent, W. Endicott and Marquis.

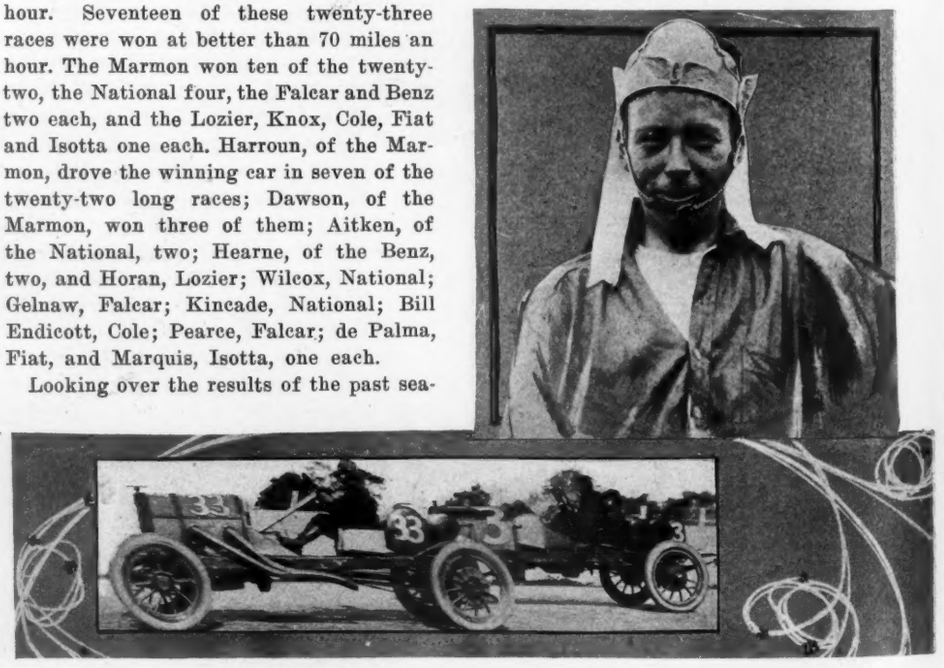
Of course the prize record so far as pure speed is concerned is the mile mark, which stands at :35.63, which was made at Indianapolis last May by Oldfield in the Benz. This, however, was not quite as fast as the ½-mile record of :17 which also was made by Oldfield in the Benz, but on the big speedway at Cheyenne, where Barney attained a speed of 105.88 miles an hour. The 20-mile free-for-all at Indianapolis in July showed a dizzy flight when Eddie Hearne in the Benz 120 averaged 85.1 miles per hour for the distance. This, however, can be regarded only as a sprint, for one does not get into the long-distance category until the 50-mile mark at least is reached.

On the three speedways above mentioned there have been run this season twenty-three races which can be carded as long-distance events. The fastest of these was the 100-mile free-for-all at Indianapolis in which Hearne averaged 75.03 miles per hour. Seventeen of these twenty-three races were won at better than 70 miles an hour. The Marmon won ten of the twenty-two, the National four, the Falcar and Benz two each, and the Lozier, Knox, Cole, Fiat and Isotta one each. Harroun, of the Marmon, drove the winning car in seven of the twenty-two long races; Dawson, of the Marmon, won three of them; Aitken, of the National, two; Hearne, of the Benz, two, and Horan, Lozier; Wilcox, National; Gelnaw, Falcar; Kincade, National; Bill Endicott, Cole; Pearce, Falcar; de Palma, Fiat, and Marquis, Isotta, one each.

Looking over the results of the past season with a critical eye, one cannot help but admire the performances of Ray Harroun, of the Marmon, and Johnny Aitken, of the National. Undoubtedly the honors of the season so far as speedway racing is concerned, belong to these two drivers and these makes of cars. Harroun won fifteen firsts, ten seconds and four thirds out of forty-five starts, while Aitken captured eleven firsts, five seconds and nine

RECORDS OF SPEEDWAY CARS

	Starts	1st	2nd	3rd	Unplaced
Alco	3	2	0	0	1
American	9	1	3	0	5
Apperson	3	0	1	1	1
Abbott	5	0	2	1	2
A-K	1	0	0	0	1
Benz	11	5	3	3	0
Buick	31	14	7	2	8
Black Crow	14	0	0	2	12
Cole	28	7	5	1	15
Cutting	14	0	0	2	12
Chadwick	3	0	0	0	3
Cino	5	0	0	0	5
Chalmers	2	0	0	1	1
Corbin	1	0	0	1	0
Christie	4	0	0	2	2
Darracq	13	2	4	4	3
Diamond T	2	0	0	0	2
Dorris	4	0	2	0	2
Empire	10	0	2	0	8
E-M-F	13	2	2	4	5
Fiat	43	21	10	5	7
Firestone	23	1	1	5	16
Falcar	32	4	3	6	19
Fuller	1	0	0	0	1
Ford	7	2	1	1	3
Great Western	16	0	1	0	15
Hupmobile	3	0	0	1	2
Herreshoff	20	5	3	5	7



E. A. HEARNE, BENZ, HOLDER OF SPEEDWAY HELMET

LONG DISTANCE RACES RUN ON INDIANAPOLIS, ATLANTA AND

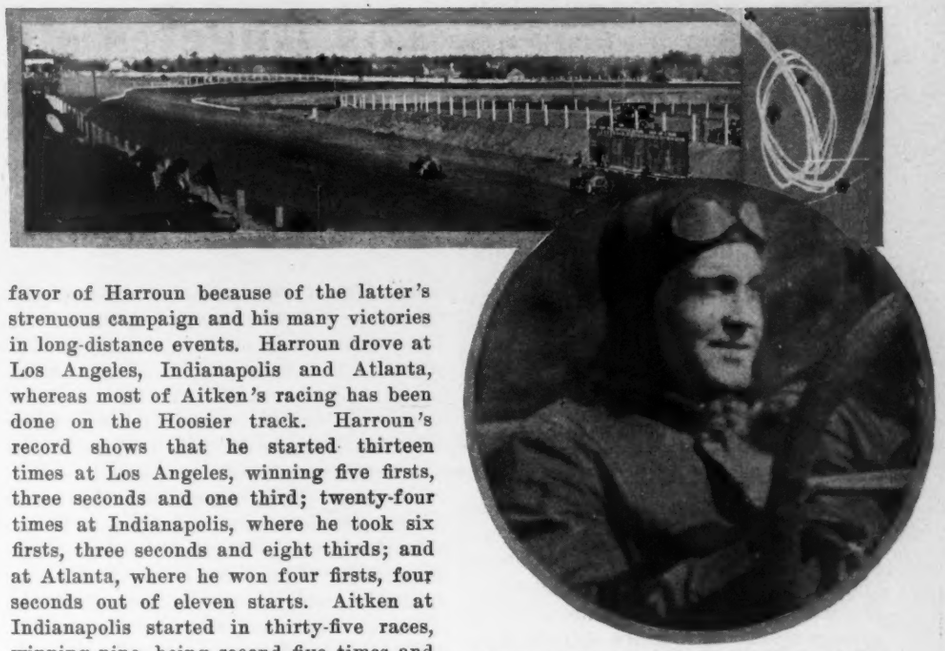
Dist.	Track	Date	Cup or Class	Car	Driver	Time	M.P.H.
250	Atlanta	November	Free-for-all	Lozier six	Horan	3:26:15	72.07
200	Indianapolis	May	Schebler cup	Marmon six	Harroun	2:46:32	73.06
200	Indianapolis	July	Cobe cup	Marmon	Dawson	2:43:20.14	73.57
200	Atlanta	November	451-600 class	Marmon	Dawson	2:51:12.72	70.09
200	Indianapolis	September	Free-for-all	National	Aitken	2:47:54.74	71.47
200	Atlanta	May	Atlanta trophy	Marmon	Harroun	3:02:31.24	65.75
200	Atlanta	May	Atlanta trophy	National	Kincade-Aitken	3:02:24.27	65.78
148	Los Angeles	May	2-hour race	Marmon	Harroun	2:00:00	74.00
146	Los Angeles	November	2-hour race	Knox	J. Nikrent	2:00:00	72.01
100	Indianapolis	September	Free-for-all	Benz	Hearne	1:19:58.08	75.03
100	Indianapolis	July	Remy cup	Marmon	Dawson	1:20:40.70	74.38
100	Indianapolis	September	Remy cup	National	Wilcox	1:23:03.52	72.25

DURING THE SEASON OF 1910

	Starts	1st	2nd	3rd	Unplaced
Hudson	1	0	0	0	1
Halladay	1	0	0	0	1
Isotta	9	1	2	3	3
Jackson	18	0	2	1	15
Knox	16	7	1	2	6
Lozier	8	2	2	2	2
Marmon	83	23	21	11	28
Marquette-Buick	21	8	4	1	8
Maytag	5	1	0	0	4
Mercedes	3	1	0	1	1
Midland	7	0	0	1	6
Matheson	9	0	2	0	7
McFarlan	20	2	1	3	14
National	121	23	28	24	46
Pope-Hartford	22	0	1	3	18
Parry	5	0	0	0	5
P-S	4	1	1	0	2
Reo	1	0	0	0	1
Stoddard	21	2	5	8	6
Simplex	21	5	5	2	9
Staver	4	0	1	1	2
Speedwell	5	0	0	1	4
Stearns	5	0	0	1	4
S-P-O	3	0	1	1	1
Warren-Detroit	16	0	1	2	13
Westcott	7	0	2	0	5

thirds out of thirty-eight starts. The Marmon was first twenty-three times, second twenty-one times and third eleven times out of eighty-three efforts, while the National started 121 times, winning twenty-three firsts, twenty-eight seconds and twenty-four thirds.

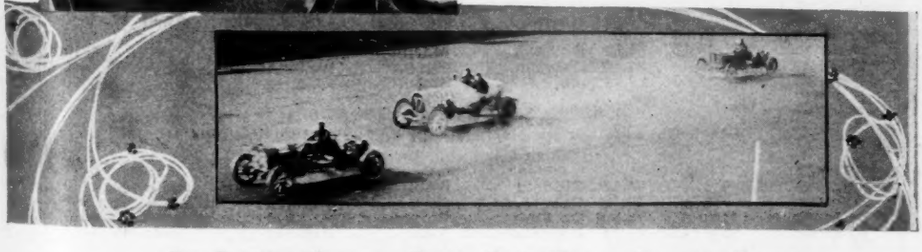
If the matter were put up to a jury to pick the champion driver of the year that jury probably would hand in a verdict in favor of Harroun because of the latter's strenuous campaign and his many victories in long-distance events. Harroun drove at Los Angeles, Indianapolis and Atlanta, whereas most of Aitken's racing has been done on the Hoosier track. Harroun's record shows that he started thirteen times at Los Angeles, winning five firsts, three seconds and one third; twenty-four times at Indianapolis, where he took six firsts, three seconds and eight thirds; and at Atlanta, where he won four firsts, four seconds out of eleven starts. Aitken at Indianapolis started in thirty-five races, winning nine, being second five times and third seven times; at Atlanta he made six starts and was out of the money only once, getting two firsts, one second and two thirds. One of these firsts, however, was divided with his team mate, Kincade. This winds up Harroun's racing career, as he has retired from the game.



GELNAW, FALCAR, COCA-COLA CUP WINNER AT ATLANTA SPEEDWAY

De Palma and Bragg, the two Fiat drivers, have had a surprisingly good year. De Palma started twenty times, and won ten firsts, while Bragg won nine of his fifteen races.

Joe Dawson was another of the season's stars, and is credited with having won eight of his twenty-one races, which include the Cobe cup and the City of Atlanta trophy, both long-distance events of great importance. Burman and Louis Chevrolet would have been higher in the list had it not been for the disqualifications of the Marquette-Buicks at the July meeting at Indianapolis which took from the two several firsts, leaving Burman with five firsts, five seconds and one third out of twenty-two starts, and Chevrolet seven firsts out of sixteen starts. Hearne was a most consistent performer in his Benz, but he drove only at Indianapolis, where he succeeded in winning five out of eleven races. The only two times he was out of the money were when he was driving another make of car than his Benz.



BOB BURMAN, MARQUETTE-BUICK, FIRST WINNER SPEEDWAY HELMET

Kincade, Livingstone, Lytle, Oldfield and Wilcox were consistent performers on the speedway, but death turned off the spark on poor Kincade and Livingstone just at a time when their prospects for attaining premier honors were the brightest. Kincade was killed in practice on the Indianapolis speedway on July 5 and Livingstone, who succeeded him on the team, met the same fate at Atlanta only recently.

Horan and Mulford, of the Lozier, did not cut into the speedway game until the November meet at Atlanta, but the work they did there shows that had the Lozier company swung around the entire circuit that its cars and drivers would have ranked high up in the summing up of the season. Horan, Mulford's former mechanic, made a brilliant debut at Atlanta, where he won the 250-mile free-for-all and landed two records for the Lozier car.

Indianapolis paid out $15,980 in cash prizes at its three meets this season—the first May 27-28-30, when $2,080 was put up; the second July 1-2-4, when $5,370 was paid out; and the last September 3-5, when $8,530 was distributed among the racing men. The biggest winner of the season at Indianapolis was Eddie Hearne, whose bank account was increased by $2,125. In addition to this Hearne also drew down $800 for twice winning the speedway helmet. Johnnie Aitken won $1,700 in cash prizes on the Hoosier track as against $925

LOS ANGELES SPEEDWAYS DURING YEAR AND THEIR WINNERS

Dist.	Track	Date	Cup or Class	Car	Driver	Time	M.P.H.
100	Atlanta	November.	301-450 class.	Falcar	Gelnaw	1:26:07.06	69.66
100	Indianapolis.	May.	Prest-O-Lite tr'phy	National	Kincade	1:23:43.12	71.67
100	Los Angeles.	May.	231-300 class.	Marmon	Harroun	1:25:22.07	70.26
100	Los Angeles.	May.	Under 600.	Marmon	Harroun	1:16:21.90	74.67
60	Atlanta	May.	161-230 class.	Cole	Endicott	1:00:28.46	59.54
50	Indianapolis.	September.	Free-for-all	Benz	Hearne	38:02.85	78.87
50	Indianapolis.	July.	G & J trophy.	Falcar	Pearce	45:12.83	66.36
50	Los Angeles.	May.	Free-for-all	Fiat Cyclone.	De Palma.	37:55.53	79.11
50	Los Angeles.	May.	Venice sw'pstakes.	Isotta	Marquis	39:20.69	76.27
50	Los Angeles.	May.	301-450 class.	Marmon	Harroun	39:53.55	75.21
50	Indianapolis.	May.	231-300 class.	Marmon	Harroun	42:41.83	70.02

All races at Los Angeles were Class C, free-for-all events

that his rival Harroun received. The latter, however, was given a bonus of $1,000 by F. H. Wheeler for winning the Schebler trophy. Al Livingstone, who drove only at one meeting but on that occasion he won $1,050 in cash. De Palma only got $300 from the Hoosiers, while Louis Chevrolet cashed in $450. Bob Burnam got $550 as well as $400 more for winning the speedway helmet. In addition Burman pulled down a snug sum for capturing the Remy trophy. Arthur Greiner did fairly well, getting $430, while Oldfield's actual winnings on the Indianapolis track amounted only to $100. Grant in the Alco drew $200 for his one victory, while Harry Knight, driver of the Westcott, is $540 better off.

RACING AT GUTTENBERG

New York, Nov. 26.—Favored with glorious weather and a large attendance, the races held at the old Guttenberg track on Thursday, for cars nominated by Hudson County dealers, should prove the commencement of a series of good meets easily accessible to Jerseyites and New Yorkers alike. Two of the three car performers—the Fiat Cyclone and Marquette-Buick—gave good account of themselves, while troubles prevented the other, a Pope-Hartford, from showing its speed. Previous to the racing proper, during a trial spin of the Fiat at a fast clip, one of the rear tires blew off and hit de Palma in the face, swelling his lip badly. Later, in the 20-mile free-for-all, while leading the field by nearly a mile in the eighth lap, the Fiat was seen to turn around on the lower bend and slide through the small fence; this was caused by the snapping of a steering arm short off at the axle, rendering the steering gear useless.

In the 15-mile race, when over a lap in the lead, the Pullman broke a wheel, but this was replaced later and the car came in second in event No. 5. The National proved the best prize winner, finishing first in the 20-mile free-for-all and 5-mile stock class for cars with engines of from 30 to 60 cubic inches piston displacement, and second to the big Fiat in the 10-mile free-for-all. Summary:

FIVE MILES, FOR STOCK CARS UNDER 231 CUBIC INCHES, CLASS E

Car	Driver	Time
Maxwell	T. Costello	6:07
Abbott-Detroit	M. Bassle	6:09
Maxwell	T. C. Wolverton	6:20

TEN-MILE FREE-FOR-ALL, CLASS D

Fiat	R. de Palma	10:16
National	D. Tettiers	11:35
Buick	C. Beach	11:45
Pullman	W. Burke	12:11

FIFTEEN-MILE STOCK CHASSIS, 231 TO 300 CUBIC INCHES, CLASS C

Mitchell ... ... V. Wilhelms 20:21½
Pullman broke wheel when leading by two laps; did not finish.

TEN MILES, EXHIBITION

Marquette-Buick ... B. Burman 9:57¼
Time by laps—1:07, 2:07, 3:07, 4:05, 5:04, 6:03, 7:01, 8:00, 8:58, 9:57½.

TWENTY-MILE FREE-FOR-ALL, CLASS D

National	D. Tittiers	23:00
Matherson	Nell Whalan	23:12
Maxwell	T. Costello	23:19½
Pullman	W. Burke	23:20

FIVE MILES, STOCK CHASSIS, 300 TO 600 CUBIC INCHES, CLASS E

National	D. Tettiers	5:32
Pullman	E. T. Gilliard	5:34½
Pullman	W. Burke	5:54

Los Angeles Meet a Tame Affair

LOS ANGELES, CAL., Nov. 27—The second meet held on the mile board speedway here, which took place yesterday and today, hardly was as brilliant as the one held last spring when the circle was tried for the first time. There wasn't the shattering of records that marked the April meet, and the contesting fields lacked the class of last spring. It was a meet made up of local talent and there was only one record broken. That was gathered in today by Joe Nikrent, driving a Knox, who lowered slightly the class C mark made by himself in a Buick last spring—the 5-mile in the 301-450 class, which was reduced from 3:52.69 to 3:50.4.

Only one long distance race was run, a 2-hour affair which was split into two heats, one of which was run yesterday and the other today. Each was of 1 hour's duration and the winner was the Knox, which covered 142 miles in the 2 hours. The Cutting was second with 127 miles and the Parry third with 113 miles.

In the opening event yesterday, a 5-mile affair, the Knox, with Joe Nikrent at the wheel, won out over a field of three starters after the race had developed into a dual affair, through the Buick being eliminated on account of mechanical trouble. After the first mile, the Cutting, driven by George Clark, was the only contestant against the Knox, and the two fought every inch of the way to the finish. The Knox maintained a slight advantage throughout. The winner averaged close to 70 miles per hour and crossed the line in 3:59 for the distance.

The second event, also over a 5-mile course, resulted in what appeared to be a dead heat between the Buick and Cutting. The Buick was declared the winner, and this time it was Louis Nikrent at the wheel. The Durocar, with Clifford McKeague driving, gave the leaders a hot chase from start to finish, and was but ⅕ second behind the winner. The time in this race was not as good as in the first, the 5 miles being covered in 4:31⅘.

The third race, originally scheduled for 25 miles, was cut to a 5-mile event. The entries were the Buick, with Louis Nikrent as driver; the Cutting, driven by George Clark, and the Knox, piloted by Joe Nikrent. The Buick led all the way and won easily in 3:53⅗.

The fourth event was for 5 miles, and was contested by the Oakland, driven by George Bobst, and the Staver-Chicago, driven by Jim Fouth. The Oakland won easily in 4:41.

Besides the 2-hour race there were four other races contested today. In the 301-450 class the order of finish was Knox, Buick and Cutting, the time being 3:50⅖. In another 5-mile race Louis Nikrent in a Buick defeated a Cutting and a Buick in 4:18⅗. A 5-mile pursuit race was won by a Staver-Chicago in 4:34, defeating an Oakland and a Ford. A 5-mile free-for-all was won by the Knox in 4:54⅖, with a Staver second and a Duro third.

SPEEDWAY RECORDS APPROVED BY A. A. A. CONTEST BOARD

SPEEDWAY RECORDS, REGARDLESS OF CLASS

Distance	Time	M.P.H.	Driver	Car	Place	Date
½ mile	:17.00	105.88	Oldfield	Benz	Cheyenne	May 11, 1910
1 kilo	:21.45	104.28	Oldfield	Benz	Indianapolis	May 30, 1910
1 mile	:35.63	101.03	Oldfield	Benz	Indianapolis	May 30, 1910
2 miles	1:15.96	94.78	Bragg	Fiat	Los Angeles	April 13, 1910
5 miles	3:15.62	92.01	De Palma	Fiat	Los Angeles	April 8, 1910
10 miles	6:35.62	90.99	Robertson	Simplex	Los Angeles	April 9, 1910
15 miles	10:25.17	86.37	Hearne	Benz	Indianapolis	July 4, 1910
20 miles	14:06.72	85.03	Hearne	Benz	Indianapolis	July 4, 1910
25 miles	18:52.00	79.50	De Palma	Fiat	Los Angeles	April 13, 1910
50 miles	37:55.53	79.03	De Palma	Fiat	Los Angeles	April 13, 1910
75 miles	57:15.79	78.52	Harroun	Marmon	Los Angeles	April 17, 1910
100 miles	1:16:21.90	78.56	Harroun	Marmon	Los Angeles	April 17, 1910
150 miles	2:01:09.43	74.28	Dawson	Marmon	Atlanta	Nov. 7, 1910
200 miles	2:43:20.14	73.46	Dawson	Marmon	Indianapolis	July 4, 1910
250 miles	3:26:15.00	72.72	Horan	Lozier	Atlanta	Nov. 7, 1910

CLASS B SPEEDWAY RECORDS

Stock Chassis, Piston Displacement and Minimum Weight

451 to 600 Cubic Inches

Distance	Time	M.P.H.	Driver	Car	Place	Date
5 miles	4:01.36	74.57	Oldfield	Knox	Indianapolis	May 30, 1910
10 miles	7:47.71	70.68	Robertson	Fiat	Atlanta	Nov. 11, 1909
20 miles	15:57.41	75.20	De Palma	Fiat	Atlanta	May 5, 1910
50 miles	42:02.98	71.34	Robertson	Fiat	Atlanta	Nov. 13, 1909
100 miles	1:22:35.35	72.64	Robertson	Fiat	Atlanta	Nov. 13, 1909
150 miles	2:05:00.63	71.99	Robertson	Fiat	Atlanta	Nov. 13, 1909
200 miles	2:53:48.32	69.04	Disbrow	Rainier	Atlanta	Nov. 13, 1909

301 to 450 Cubic Inches

Distance	Time	M.P.H.	Driver	Car	Place	Date
5 miles	4:05.76	73.24	Kincade	National	Indianapolis	May 27, 1910
10 miles	7:57.09	75.41	Aitken	National	Indianapolis	May 30, 1910
20 miles	15:01.00	79.91	Dawson	Marmon 32	Indianapolis	May 27, 1910
50 miles	39:47.35	75.39	Dawson	Marmon 32	Atlanta	Nov. 3, 1910
75 miles	1:00:16.34	74.66	Dawson	Marmon	Indianapolis	May 27, 1910
100 miles	80:40.70	74.31	Dawson	Marmon 32	Indianapolis	July 2, 1910
150 miles	2:05:02.17	71.97	L. Chevrolet	Buick	Atlanta	Nov. 9, 1909
200 miles	2:46:48.47	71.93	L. Chevrolet	Buick	Atlanta	Nov. 9, 1909
250 miles	4:38:57.40	53.77	Burman	Buick	Indianapolis	Aug. 19, 1909

231 to 300 Cubic Inches

Distance	Time	M.P.H.	Driver	Car	Place	Date
5 miles	4:16.00	70.70	Dawson	Marmon	Indianapolis	July 2, 1910
10 miles	8:16.08	72.56	Harroun	Marmon	Indianapolis	May 27, 1910
20 miles	17:10.70	69.85	L. Chevrolet	Buick	Atlanta	Nov. 11, 1909
25 miles	21:48.92	68.75	Harroun	Marmon	Indianapolis	May 30, 1910

France Will Renew the Grand Prix

PARIS, Nov. 18—France now seems to regret its decision to abstain from racing, for it has just been decided that there shall be a big speed test next year, to be known as the grand prix of France, and to be run on a fast course in the Sarthe district on some date between May 15 and July 15. It is the Automobile Club de la Sarthe which is responsible for the race, with the patronage and official sanction of the Automobile Club of France. The racing board of the French club is under a vow not to promote any road race, but as the last two seasons have shown its abstention to be a mistake, the leaders are quite willing to turn the difficulty by backing a race promoted by a private club. The Sarthe district is the one in which the 1906 2-day grand prix was held, when Sisz in a Renault was the winner; its roads provide perfect well-surfaced straightaways of a switchback nature.

Two races are scheduled for next year, one for cars limited to 4.3 by 7.8 inches bore and stroke, and another for any type of car of any weight or power. The two races will be run on the same day, over a distance of about 370 miles. In addition to medals offered by the Automobile Club of France, there will be a trophy for the winner in each class of the value of $1,000, or this amount in cash. Entries are received until February 1, 1911.

Objection doubtless will be made by constructors to the dimensions fixed for the limited power cars. France is much more interested in cars of 80 or 90 millimeters bore (3.1 and 3.5 inches) than in those of 4.3 inches, the great majority of motors for next season not exceeding 3½ inches bore. Further, the stroke is too short, for the ratio works out at only 1.81 to 1, while several firms are now producing standard touring cars with a stroke twice the dimensions of the bore, and one French firm will confine itself next year to cars having a ratio of 2.42 to 1 stroke to bore; these, it must be remembered, are standard touring cars, as delivered to the public, and not special racing models. For these latter the ratio runs as high as 4 to 1.

The unrestricted class is not likely to reveal anything new, and in spite of the absence of weight and engine limitations, the winner is likely to be the four-cylinder Lion-Peugeot of 2½ by 10⅕ inches bore and stroke, or some very similar type of car. It is certain that this car can beat anything produced in the 4.3 by 7.8 class, and as it can cover the whole distance without stopping to fill the gasoline tank, and even without a stoppage for tires, its weight being less than 1,800 pounds, it should prove faster on a long distance than the Benz run in the American grand prix. It is doubtful if there will be many specially constructed cars in the unlimited class; such firms as Fiat, Benz, Lion-Peugeot, Opel and a few others already having fast cars, may be expected to enter them, but the old French houses have so long neglected special racers that they are not likely to come back to the game with any relish.

The raising of the bore limit to 110 millimeters will keep out an important group of the smaller firms having done a lot of pioneer work with motors of not more than 90 millimeters bore. These firms will have to build special motors to enter in either class, whereas had the limit been lower, they could have entered in the limited bore class with modified stock cars costing very much less to build than a special racer. Although the Automobile Club of Sarthe can be congratulated on taking up a work that the Automobile Club of France has long neglected, its technical regulations are far from being satisfactory.

SPEEDWAY RECORDS APPROVED BY A. A. A. CONTEST BOARD

Distance	Time	M.P.H.	Driver	Car	Place	Date
50 miles....	42:41.33	74.18	Harroun	Marmon	Indianapolis	May 30, 1910
75 miles....	67:31.07	66.64	Harroun	Marmon 32	Atlanta	Nov. 11, 1909
100 miles....	1:30:08.31	66.56	Harroun	Marmon	Atlanta	Nov. 11, 1909

161 to 230 Cubic Inches.

Distance	Time	M.P.H.	Driver	Car	Place	Date
4 miles....	3:49.00	62.88	Witt	E-M-F	Atlanta	Nov. 3, 1910
5 miles....	4:35.47	65.34	L. Chevrolet	Buick	Indianapolis	July 2, 1910
10 miles....	8:55.40	67.23	L. Chevrolet	Buick	Indianapolis	July 2, 1910
20 miles....	19:51.00	60.45	Knipper	Chalmers	Atlanta	Nov. 10, 1909
50 miles....	50:36.00	59.28	Nelson	Buick	Atlanta	Nov. 9, 1909
100 miles....	1:40:46.81	59.53	Knipper	Chalmers	Atlanta	Nov. 10, 1909

161 Cubic Inches and Under

Distance	Time	M.P.H.	Driver	Car	Place	Date
5 miles....	5:22.87	55.74	Roberts	Herreshoff	Indianapolis	July 4, 1910
10 miles....	10:37.59	56.46	Roberts	Herreshoff	Indianapolis	July 2, 1910

CLASS C SPEEDWAY RECORDS

No Restriction Other Than Piston Displacement

160 Cubic Inches and Under

Distance	Time	M.P.H.	Driver	Car	Place	Date
15 miles....	17:07.81	52.53	De Palma	Fiat	Los Angeles	April 10, 1910

161 to 230 Cubic Inches

Distance	Time	M.P.H.	Driver	Car	Place	Date
5 miles....	4:23.21	68.38	J. Nikrent	Buick	Los Angeles	April 10, 1910
10 miles....	8:40.17	69.20	J. Nikrent	Buick	Los Angeles	April 15, 1910
50 miles....	43:49.69	68.84	W. Endicott	Cole	Los Angeles	April 9, 1910

231 to 300 Cubic Inches

Distance	Time	M.P.H.	Driver	Car	Place	Date
5 miles....	3:55.97	76.28	Harroun	Marmon	Los Angeles	April 10, 1910
100 miles....	1:25:22.07	70.28	Harroun	Marmon	Los Angeles	April 8, 1910

301 to 450 Cubic Inches

Distance	Time	M.P.H.	Driver	Car	Place	Date
5 miles....	3:50.04	78.12	J. Nikrent	Knox	Los Angeles	Nov. 27, 1910
10 miles....	7:36.61	78.84	J. Nikrent	Buick	Los Angeles	April 16, 1910
50 miles....	39:53.55	75.20	Harroun	Marmon	Los Angeles	April 10, 1910

451 to 600 Cubic Inches

Distance	Time	M.P.H.	Driver	Car	Place	Date
5 miles....	3:52.20	75.51	Oldfield	Knox	Los Angeles	April 16, 1910
10 miles....	7:20.66	81.69	Oldfield	Knox	Los Angeles	April 17, 1910
50 miles....	39:20.69	76.24	Marquis	Isotta	Los Angeles	April 15, 1910

CREDITORS INVESTIGATE THOMAS

Buffalo, N. Y., Nov. 29—Announcement has been made today of the appointment of a committee of six to investigate the affairs of the E. R. Thomas Motor Co., of this city, for the benefit of the creditors. The committee consists of the following: W. H. Crosby, chairman, president Crosby Co., Buffalo, N. Y.; Edward Rowland, William A. Harvey, Rowland Co., Philadelphia, Pa.; R. H. Hills, vice-president Biddle & Small Co. and Amesbury Brass and Foundry Co., Amesbury, Mass.; C. E. Wettlaufer, president H. D. Taylor Co., Buffalo, N. Y.; Ralph G. Wright, R. G. Wright & Co., Buffalo, N. Y.; and Henry W. Pottle, secretary, room 5, Erie Co. Savings Bank building, Buffalo, N. Y. The Buffalo Loan, Trust and Safe Deposit Co., Buffalo, N. Y., is depository, and M. B. and H. H. Johnson, 1009 American Trust building, Cleveland, O., counsel.

The committee announced today that so far as it can determine the assets of the company should be worth $2,000,000, against which there is an indebtedness of $1,600,000. Of this $1,600,000 the sum of $650,000 is due to merchandise creditors for raw materials and stock on hand, and the balance is borrowed money due banks and individuals.

The committee has executed an agreement with the depository, under which claims may be deposited with said trust company, subject to the order of the committee. December 1 has been set as the last day on which claims may be received by the depository.

NO SELDEN DECISION YET

New York, Nov. 29—The presentation of the A. L. A. M. case against Ford and others was concluded last Friday and the matter now is in the hands of Federal Circuit Judges Larcomb, Ward and Noyes. No decision is looked for within 6 weeks, although it may be reached before that time. The Delahaye Import Co. has filed an answer to a similar suit by the A. L. A. M. The defendant charges that Selden should not have delayed making application for a patent from 1889 until 1895, and asks a be discharged on that ground.

Gossip of the Motor Trade in Detroit

DETROIT, Mich., Nov. 28—December 15 is the date set for the annual drawing for space in the winter show conducted by the Detroit Automobile Dealers' Association. The coming exhibition will be the tenth in the association's history and it will be held in the Wayne pavilion, January 16 to 21. Manager Wilmot is in something of a quandary as to know just how to take care of all the outside applicants. According to present indications, the 30,000 square feet available will not much more than meet the demands of the members. It has been decided to confine the exhibition to motor cars almost exclusively. In other words, there will be no accessory annex. The prevailing colors will be rose, gold and white. No fewer than 40,000 roses and 30,000 incandescent lamps will be used. The cost will be in the neighborhood of $20,000. The general details of the show plans will be perfected at a meeting of the directors to be held in the very near future.

Fred Postal, of the Griswold house, has fitted up what was formerly the main dining room of the hostelry into cozy club rooms, which will be used by the Wolverine Automobile Club until it gets a club house of its own. The new quarters were dedicated Saturday night with a smoker, which proved an unusually happy occasion. Local and professional talent provided a vaudeville program of unusual excellence, with plenty of ginger mixed in, and the affair was topped off with a fine lunch. The place is so equipped that members may take their lunch here daily, or all their meals, for that matter, with service from the hotel kitchen. Otherwise the club rooms are distinctly apart from the hotel and are reserved for the use of the club exclusively, all the ordinary club privileges going with membership. The club is growing so rapidly that it is almost impossible for the secretary to keep track of the recruits to the ranks.

Chalmers dealers are gathering here today from all parts of the country for a 4 days' convention at the factory, to wind up with a banquet in the Hotel Pontchartrain, Thursday night. This morning the visitors were shown through the Chalmers plant and the opening business session is scheduled to follow the noonday lunch. Wednesday the visiting dealers will visit the Morgan & Wright plant. A history of the company, illustrated by lantern slides, will feature one of the business sessions. The Chalmers advertising methods will be the subject of another interesting subject.

Death robbed the Detroit motor industry of one of its most active figures and the E-M-F Co. of one of its most valued officials in a tragic manner Saturday night, when David Hunt, Jr., general manufacturing manager for that company, and second only to President Flanders as far as the manufacturing end was concerned, was almost instantly killed in a motor accident near Yale, Mich. Charles Adams, general superintendent of the company, who was driving the car, escaped with a wrenched back. With a merry party of men, including Mr. Adams, Morgan Kavanaugh, head of the drafting department of the E-M-F; Lee M. White, chief inspector, and two others, Mr. Hunt had started out on a rabbit hunting expedition, leaving Detroit in two cars.

Mr. Hunt was 35 years old. He leaves a widow and one daughter, 8 years old. The funeral took place this afternoon from the family residence, and the remains will be taken to Boston, where the parents of the deceased reside, for burial.

Mr. Hunt is the second local motor car company official to succumb within as many days. Harry C. Barnes, factory superintendent of the Barnes Motor Co., now in bankruptcy, died in Harper hospital Thursday night, after a brief illness. It is thought he was a victim of infantile paralysis, in which case he is the first adult to be taken by that much-feared malady, which has but lately made its appearance in this country. Mr. Barnes became connected with the company that bore his name at the time of its reorganization from the Anhut Motor Car Co. He formerly was connected with the Overland. He was 36 years old. He leaves a widow and two children.

George E. Keller, formerly sales manager for the Studebaker Brothers Mfg. Co., in South Bend, was recently appointed general sales manager for all the Studebaker interests, including the E-M-F properties. He is now spending several days of each week at the main plant of the E-M-F here and is co-operating with Sales Manager Ben W. Twyman, of that company.

The report that the General Motors Co. may remove its headquarters to Detroit caused quite a little stir in local financial circles, and these interests here are hoping it is true. The four Detroiters elected to the board of directors in New York last week are all men of the highest standing in Detroit's industrial and financial circles. Emory W. Clark is vice-president of the First National Bank; M. J. Murphy, president of the Murphy Chair Co.; Andrew H. Green, general manager of the Solvay Process Co., and Thomas Neal, general manager of the Acme White Lead and Color Works.

The Hupmobile world-tour car is still wrestling with the bad roads of the wild and woolly west, having successfully negotiated the Red desert and Bitter creek sections within the past few days. According to reports received here, there has been no mishap worth mentioning.

G. G. Behn, executive engineer for the Hudson Motor Car Co., left Sunday for New York, whence he will sail early this week for Paris, to attend the Paris show next month. In addition to attending the show, Mr. Behn will visit the larger motor car factories of France, Germany and Italy while he is in Europe.

BRISCOE'S VIEWS OF EUROPE

New York, Nov. 28—A shortage of cars, a great increase in taxicab building, a rapid development of the commercial vehicle, a general standardization of chassis, popularity of torpedo and closed door bodies, a large demand for American-built cars, especially the low and medium-priced models, and a general tone of optimism, are in brief the conditions of the industry in Europe, as found by President Benjamin Briscoe of the United States Motor Co., who recently returned from a business trip through England and France.

President Briscoe's principal object in going abroad was for the purpose of forming the United International Motors, Ltd., an English concern which will manufacture products of the United States Motor Co. for European trade. The English company will manufacture duplicate models of the Maxwell, Brush, Columbia, Stoddard-Dayton, Courier and Sampson 35. Before leaving for America, Mr. Briscoe opened salesrooms at 114 Wardour street, London, west, where models of the affiliated companies now are on exhibition.

Mr. Briscoe declared that the motor car industry in England and on the continent seems to be in an extremely prosperous condition, and in England especially there is evidence on every hand that the industry is now in the era of its greatest prosperity.

"The Olympia show produced practically nothing in the way of new mechanical design," says Mr. Briscoe. "I would, in fact, call it more of a coach-builders' show than a show of mechanical construction. It was interesting to note practically the universal prevalence of the fore-door body construction; in fact, it seems to be impossible to sell a motor car in England or in Europe which has not a body designed with the fore-doors. The taste in bodies seems to run more to curves than it does with us; in fact, to an American manufacturer, educated to the straight-line body construction such as has prevailed with us for the last few years, some of the English designs look antique and odd. The Knight engine seems to be meeting with favor, although in the motor papers and among the technical fraternity there seems to be a great deal of controversy on the merits of poppet-valve versus sliding-valve motors.

"To quote some figures as to the condition of the trade in England, France and Germany, the three countries that I visited, I had obtained for me from the government statistical office copies of the motor car records. In England, for the year ending January 1, 1909, there were sold 19,184 cars, 14,239 of which were English-made cars. The average value of the Eng-

lish-made car seems to be about $1,900. In Germany, in 1909, there were about 8,000 cars sold and in France between 8,000 and 9,000. While, therefore, the number of cars sold in these three countries is only about one-sixth of the total number sold in America, on account of the increased selling price per car the annual turn-over is nearly one-half what it is in America.

"America, so far, has done very little business in either England or the continent. A comparison of the imports for instance for the year 1909 into England is a commentary on the smallness of the American export business; for there were exported into England during that year: From France, cars to the value of $12,600,000; from Germany, $4,125,000; from Belgium, $1,930,000; from Italy, $1,125,000; from the United States, $730,000.

"The opinion that my investigations forced upon me was that it is impracticable for an American manufacturer to place a line of cars, as they are made for American roads and American conditions, with a European dealer in the hope of any very large business, nor can the American manufacturer hope for any considerable volume of business if it is to be handled at long range.

"Our plants are certainly more thoroughly organized and more completely equipped and our methods and processes are more highly specialized and systematized, so that there would be, to my mind, no question but that a wide and growing market for our product can be obtained.

"In the main, however, the mechanical construction in the American cars is the same as foreign cars, and I think it can now be said that they are more highly developed mechanically, being the result of a vastly greater experience of American over foreign makers, coming from the much larger annual outputs.

"The American manufacturer can undoubtedly, therefore, give the buyer a better mechanical product than the foreign makers and all that has to be done, therefore, is to bring the various types of mechanical construction in line with foreign demands; I would put it this way—that the American makers could not hope to be successful in selling to the foreigner just what he, the manufacturer, wants to sell, but he will have to make what the foreigner wants to buy."

TEXAS MAY STOP RACING

Austin, Texas, Nov. 26—The legislature which meets next January may pass a law prohibiting motor car racing in Texas. The recent fatal accidents on the tracks at Dallas and San Antonio have given rise to an agitation among a certain element of people looking to the prohibition of such sport by legislative enactment. It practically is certain that a measure with that end in view will be introduced in the legislature and a strong effort will be made, it is said, to secure its passage.

Condition of Mexican Rubber Trade

TORREON, MEXICO, Nov. 25—The profits that are being made in the guayule rubber industry in Mexico and the upper border region of Texas is causing European investors to give the matter their attention. Advices have been received here that an English syndicate with a capital of $5,000,000 has purchased the large crude rubber factory of Adolfo Marx at Saltillo, state of Coahuila, and several smaller guayule manufacturing plants in this part of the country. Mr. Marx is one of the pioneers in the industry. He started into it a few years ago with small capital and has made a fortune which is said to run up into the millions of dollars.

Another interesting prospective development is the sale of the extensive guayule interests of the Maderos to this new English syndicate. Everisto Madero & Sons are, next to the Intercontinental Rubber Co., the largest producers of crude rubber in Mexico from the guayule shrub. They own a number of large factories, scattered over their broad landed estates, and these have an aggregate output nearly equal to that of the Intercontinental Rubber Co., which is a subsidiary of the United States Rubber Co. In addition to their rubber factories, the Maderos own more than 4,000,000 acres of the best guayule shrub land in Mexico, and have several other million acres leased at low rental for a long period of years.

The Intercontinental Rubber Co. has been negotiating for several months with the Maderos in an effort to purchase their extensive holdings. It was reported last May that the deal was consummated and the consideration announced was $15,000,000 gold. A hitch arose at the last moment and the transaction was declared off. Everisto Madero, the head of the house, is 84 years old, and it is said that he is anxious to be relieved of the business cares that his enormous holdings impose upon him. The recent action of his grandson, Francisco I. Madero, in joining the revolutionary element of the country is a source of much worry to the senior Madero. It is charged by Francisco I. Madero's father that the federal government has placed an additional heavy burden of taxes upon their property because of the political imbroglio.

The official statement of the national treasury department showing that during the fiscal year ending June 30, 1910, the exports of crude rubber and guayule shrub from this country aggregated in value $26,228,189 Mexican currency, which is equivalent to $13,114,094 gold, gives some idea of the extent of the new industry. These figures include the rubber tree product, but as there was so little of this it is hardly worth considering in the total exportations. The production of crude rubber from the guayule shrub is constantly increasing, notwithstanding the recent depression in prices. It is estimated that the exportations from Mexico of this product and the shrub for the current fiscal year will be upward of $20,000,000 gold. In the last fiscal year the value of the shrub that was exported to factories in the United States and Europe for treatment was $9,468,121.

The total value of all exports from Mexico for the fiscal year ending June 30, 1910, was $260,056,228 Mexican currency. It therefore is shown that the guayule rubber and shrub exportations had an aggregate value of a little more than 10 per cent of the total exportations of the country. This is a remarkable showing when the fact is considered that the industry was unknown in the commercial world 10 years ago.

CENTRAL AMERICA GOOD FIELD

Boston, Mass., Nov. 26—Guy R. Emerson, who is the leading motor dealer in Guatemala, Central America, has been visiting his relatives here and also some of the Boston dealers with whom he was associated a few years ago. He says there is a good field for motor cars in Central America if it were developed. He went there with a mining company and it did not pan out, and while waiting for a chance to make enough to get home he saw one of the rich merchants there trying to get a big motor car going that he had imported from Europe. He had worked on it for several days without success and no one in the city could aid him until Emerson came to his notice. The latter said he would guarantee to make it go if he were left alone with it, and after closing a shed to the curious he went over the machine, located the trouble, got it working and soon had it making 50 miles an hour, to the wonderment of everyone there.

That gave him an idea. He canvassed the place and found there were a number of people who were willing to get cars if they were sure someone were on hand to keep them going. Emerson said he would stay, and one of the banks there backed him and he started in. He sent to Frank Wing, Boston agent for Marmon, to get a line on some second-hand cars and soon he was placing them. He was surprised at the way the cars caught on, and in his first season he had placed more than forty machines, mostly Marmons. It costs $300 for freight and other expenses to get the cars there, and for that reason he figured the second-hand cars would be better, although he sold some new ones. He says the roads are very good there and the demand for motor cars now is steadily on the increase. There is a prize of $1,000 now up for the first car that goes over the mountains from one city to another on a road that is called impassable. Emerson went part way some months ago and he expects to win the prize this winter.

GOOD ROADS MOVEMENT SEEMS UNIVERSAL

WASHINGTON, D. C., Nov. 25—One of the most important good roads meetings ever held in this country culminated Tuesday in the formation of the American Association for Highway Improvement, with Logan Waller Page, director of the office of public roads, as president. W. C. Brown, president of the New York Central lines, was elected vice-president; Lee McClung, treasurer of the United States, treasurer, and J. E. Pennypacker, Jr., chief of road management, department of agriculture, secretary. The executive committee is a strong one, composed of a number of leading railroad presidents. R. D. Chapin, of the Hudson Motor Car Co., represents the Association of Licensed Automobile Manufacturers on the board of directors, while Joseph W. Jones represents the Touring Club of America, and George C. Diehl the American Automobile Association. The balance of the directorate is composed of railroad presidents and good roads advocates of national note.

The meeting was called to order by Director Page. He outlined the purposes of the proposed association and called attention to the fact that there were too many engineering and economic problems that would have to be handled, but with the coöperation already assured there was not the slightest doubt that the movement would be crowned with success.

"There is no state in the union," said Director Page, "that has a perfect good roads law, with an administrative force absolutely free from politics. One of the greatest objects of our organization will be to bring about perfect laws in the various states. With an organization such as the one we are now forming, the work of booming good roads will be systematized. At the present time $90,000,000 a year is being spent in road improvement. I venture to say that $40,000,000 of this amount is wasted every year. Disconnected roads, even if they are carefully improved, do not do so much good as roads built on a connected and systematic basis.

"The primary object of the association will be to aid and promote every practical movement looking toward the improvement of public roads. There always are a number of county, state and general organizations which are doing good work along various lines and they are well represented at this meeting. It is our hope that this work will harmonize and correlate the work of all existing organizations. The need of the day in road work is to take the administration of the roads away from the influence of politics; to insist on skilled supervision of all road work; to remedy the evils of too much localization, and to substitute uniformity and system for the confusions incident to pure localism as we now find it in places."

The various associations identified with the motor car pledged hearty support to the movement. The constitution and by-laws, adopted after some discussion, provide for the admission of all members of state organizations as associate members of the national body. Headquarters will be established in this city and the work of the association will speedily be put under way by the officers of this new organization.

KENTUCKY'S ROAD WORK

Louisville, Ky., Nov. 28—The motor car is one of the most potent factors in the movement for road improvement in Kentucky, and since the advent of the motor car the development of the highways throughout the entire state has been more pronounced than during any previous period. This is due to a great extent to the fact that those closely identified with road improvement are frequently identified in one way or another with the motor car. This is made especially clear by the road development in the Blue Grass section, where hundreds of farmers own their own cars. In this part of the state some of the finest roads in the country can be found. There are miles and miles of well-kept boulevards, unexcelled anywhere in America. Following the 1910 Glidden tour there was much activity in road development in the western and southern section of the state.

In the mountain sections of Kentucky many of the highways are practically nothing more than creeks available in dry weather and impassable in the rainy season. Good roadways, however, are deeply appreciated by the people who live in the Cumberland mountains. This has been due in a large extent to the completion of the military road through Cumberland gap. This road was built by government engineers as an object lesson, simply to show the residents that road building is possible in any section. The road is as smooth as a board walk, and has been in use for several years, and its use has been continuous, for all sorts of conveyances pass over it daily. It has endured several periods of hard rains and remained intact. The road was built along the line of the old wilderness trail, over which Daniel Boone and his pioneers first entered Kentucky, and at the time work was started on the construction of the highway it was nothing more or less than a creek.

The roads in the immediate vicinity of Louisville are as a rule in an excellent state of repair, and afford excellent means of entertainment to motorists. The Louisville Automobile Club and the Bluegrass Motor Club and the Owensboro Automobile Club have been instrumental in the posting of the roads in the state. The various signs indicate all dangerous parts of the roads, all bad places, the speed limits as well as the distances to the various points in that locality.

Improvement of highways in Kentucky is now expected to go forward rapidly, and many parts of the state heretofore inaccessible to the motor car will be brought within easy reach of the centers of civilization and cultivation. It will afford fine runs for the motorists and will open up to those who delight in motoring some of the most beautiful scenery that can be found anywhere in the country. The signs have filled a long-felt want, and the tourists not familiar with the roads can now go along as easily as if they knew the direction by heart.

"BAD LANDS" A MISNOMER

Freeport, Ill., Nov. 28—The selling season of 1910 marked one of the most successful campaigns ever waged in what heretofore has been known as the bad lands of Illinois, namely, the northwest section of the state embracing Jo Daviess, Carroll and parts of Stephenson, Whiteside, Lee and Ogle counties.

Up to the present season every manufacturer in the country, including all the selling agencies and branches in Chicago, have annually sent squadrons of demonstrators and demonstrating cars into this section with a view of placing cars and establishing sales agencies, with a result that only now and then one of the hilly county natives succumbed and bought a car. Bad roads, clay hills—bad ones too,—sand along the Mississippi, lack of garages and repair men and, most of all, iron-bound pocketbooks worked against the salesmen and the buyers as well. Yet the few bankers and others who pioneered and bought cars formed the opening wedge for the successful 1910 season.

Early in the spring the White cars ventured into this country, followed by the Jackson, Henry, Mitchell, E-M-F, Ford, Auburn, Reo, Cadillac, Hupmobile and Buick, all of which met with more or less success. Garages have sprung up, sales agency arrangements made, and the motoring spirit, dormant for years, sprang into life until now every little town boasts of a garage or repair shop.

Nearly $100,000 has been invested in garages in this section. Savanna, in Carroll county, boasts it has the largest and finest equipped garage on the east side of the Mississippi river from Memphis to St. Paul. Lanark, in the same county, has a fully equipped and up-to-date garage capable of handling forty or more cars. Stockton, Galena, Warren and Scales Mound in Jo Daviess county each has garages and sales agencies. Pearl City and Lena in Stephenson county are both similarly equipped and take care of scores of tourists every season. Ogle county, heretofore absolutely impregnable as far as sales agencies were concerned, now boasts of garages and sales agencies at Mount Mor-

ris, Oregon and Polo. Dixon has come to the front with three garages; Sterling, Morrison and Fulton, in Whiteside county, all have garages and sales agencies, while Milledgeville and Chadwick, in Carroll county, both have homes for cars and places for repairs.

New roads are being laid and with few exceptions all the long hills have been smoothed off and made passable. The grades have been cut down on many of the highways and the majority of the main roads have been widened and bettered with quantities of native crushed stone. King road drags are being used after every rain and each farmer who possesses a motor car vies with his neighbor for the best piece of road.

The crops of 1910 were the best ever known and the farmer who has been skeptical has come to realize that the motor car as an investment is in reality a farm necessity. At the Sterling fair this fall more than 500 cars were counted from this section in a day. It has been estimated that nearly one-half million dollars has been expended in the purchase of cars this season, and with the banks full of money, as a result of the big crops, the prospects for business in the bad lands for 1911 seem better than ever.

BADGER ROAD PROGRESS

Milwaukee, Wis., Nov. 28—Upon recommendation of the metropolitan park commission of Milwaukee, the Milwaukee county board of supervisors will build next spring the first link in the comprehensive scheme of county boulevards projected some time ago. The city of Milwaukee has made exceptional progress in this direction. The city and county highway systems are to be made one. The first link will be a 150-foot boulevard from Lake Michigan to the extreme western city limits, running along Lake street, which is four blocks north of the Milwaukee city limits. It originally was planned to build a 120-foot boulevard, but the idea appealed so strongly to owners of property affected by the plan that they donated all the land necessary to make it 150 feet wide. This boulevard will virtually connect Lake park, the largest in Milwaukee, with Sherman park. The latter is now connected with Washington park by Sherman boulevard, 120 feet wide. When the Lake street boulevard is completed, it will give the city and county a practically continuous boulevard of 10 miles in length.

The Milwaukee county board, which recently has begun an active good roads scheme, will ask the next Wisconsin legislature to change existing laws so as to permit laying out of roads in the county under the same plan followed by the city of Milwaukee. The present method is a slow and tedious one, requiring almost endless circulation of petitions among owners of property affected. Property owners are now required to take the initiative. The proposed change will give the county the initiative.

Excellent progress is being made by the committee of the Wisconsin State Automobile Association in charge of the Wisconsin lake-to-river highway project. The committee is visiting every township affected by the proposed highway to induce the town boards to build their share. It is interesting to note that not one town board has made a flat refusal, although a majority of them made no definite promises, preferring to wait until sentiment as to the expenditure of money can be sounded. The proposed highway will start at Lake Michigan in Milwaukee and end at the Mississippi river in LaCrosse, Wis., across the entire state of Wisconsin.

OKLAHOMA PLEDGED

Oklahoma City, Ok., Nov. 26—Endorsing the recently passed good roads law, voters of Oklahoma county, Oklahoma, by their ballots authorized the county commissioners to issue half a million dollars' worth of road bonds to build the hard surface roads through the county, bisecting at Oklahoma City, and laying the foundation of a system which shall embrace the whole of the new state of Oklahoma. Oklahoma City is the county seat of Oklahoma county, and it was the vote of the city that pulled the bond issue through. The country vote was about three to one against the bonds, and the city was more than two to one for it. This was the puzzle of the election, for the farmers will get the most benefit from the improved highways while paying only about 15 per cent of the cost. The city taxpayers will be called on to pay nearly 90 per cent, and the big taxpayers, when asked how they felt about the expense, said, "Why, we do not care how much it costs. What we want is roads. This state must build a great highway across the middle part of its area, or cease to grow at the marvelous pace which has been maintained during the 21 years that it has been opened for white settlement."

Another large property owner, Oscar G. Lee, paying taxes on a million dollars' worth of down town property, said, "The building of state roads is a necessity and we are going to build them. And while we are building them, we shall build well and rival the highways of France. Oklahoma is too progressive to be led. It will lead in good roads. And it will build a state road that will be a part of that great highway trail which is designed to run from New York to Los Angeles. Oklahoma City will be the half-way house, and the motorists from New England and the Atlantic states will motor across the continent for their winter amusement, stopping at Oklahoma City to see the county roads which will be ready to ride over in a few months. Oklahoma county will be the show place of the southwest when it comes to good roads."

Such sentiments carried the election for good roads. When large taxpayers said they wanted the roads, the smaller ones eagerly got into line to vote for the bill that meant they should also pay their mite.

The first road district already has been established. It will consist of eight townships and is in the form of a maltese cross. The roads to be built through the eight townships will intersect at Oklahoma City, a town 21 years old, with 80,000 population, 115 miles of asphalt paved streets and more than a thousand licensed motor cars.

The county commissioners of Oklahoma county will at once proceed with their official duties to issue the bonds which will produce $500,000 that work may be started at once. To accommodate the demands of travel, two roads will be built from Oklahoma City to the east for a distance of 8 miles, where they will converge and make one highway to the eastern boundary of the county.

The east and west road across the county will be 30 miles in length and the north and south road will extend 20 miles long. Lateral roads will be built to connect with the main roads, and as new road districts are formed, new highways will begin to form that great web which shall cover the state of Oklahoma, making traveling along the country roads analogous to speeding along the city boulevard.

ROAD WORK IN MICHIGAN

Lansing, Mich., Nov. 28—Since July 1, 1910, the state of Michigan has expended $131,719 as its portion of the expense of constructing highways. The sum represents the award on 190 miles of good roads constructed according to the specifications laid down in the law governing state awards. Sixty of the eighty-three counties in the state came in for a share of the money.

The sum is only a small proportion of the total cost of highway work in the state, many of the townships failing to take advantage of the law. It does not indicate the amounts expended on roads by local officers in the way of repairs, etc. Many road districts are not taking advantage of the state reward highway law by which the state pays for roads made according to required specifications. Among the counties taking advantage of the state law, Kalamazoo county easily is in the lead, having slightly more than 27 miles of the new roads to its credit. Saginaw county is second, and Wayne, which contains the city of Detroit, is third. In the upper peninsula about 21 miles of road have been accepted, this being in the counties of Marquette, Iron, Menominee, Delta and Dickinson.

At the present time the state pays the reward on only 2 miles of road in any one township per year, but at the session of the legislature this winter an effort will be made to have the law amended so that the award on 6 miles may be paid. The great progress in road building makes the amendment necessary, and the fact that Wayne county also intends to do a great deal of road building in the next year or so also is cited as a reason.

ADJUSTABLE PUSHROD

DEVILS LAKE, N. D.—Editor Motor Age—I have read with much interest the communication in the Readers' Clearing House, Motor Age, issue November 17, page 37, from L. P. Gillespie, of Poughkeepsie, N. Y., on the question of an adjustable valve-lifter or pushrod to be applied to his E-M-F model 30. Herewith find two sketches of an adjustable pushrod for an E-M-F 30. I have equipped several cars with this arrangement and find them to be silent in operation and also to give the proper timing of the valves which is more necessary than silence. I find that the motor runs 50 per cent better with the pushrods adjusted up as close as they can be set while the engine is hot and expansion has taken place than to try to make adjustments while the engine is cold. I also find that the engine runs so silently that one can stand beside it while the motor is running

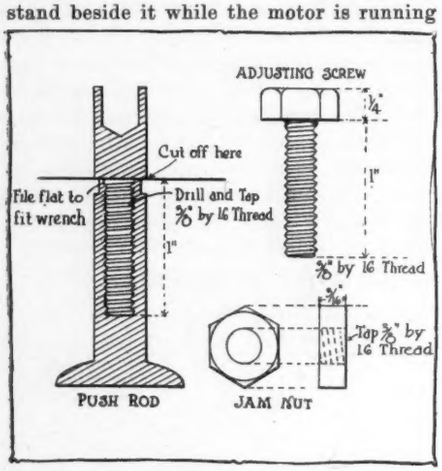


FIG. 1—RENDERING E-M-F PUSHRODS ADJUSTABLE

slowly and it is almost impossible to hear it.

The operation of applying these pushrods is to turn the motor over until the valve closes and with a three-cornered file mark the pushrods at the top of the guide bushing, one at a time, then take off the cylinders and remove the pushrods. Next take a hack-saw and cut off the end of the guide bushing flush with the top of the boss. Measure the end cut off and mark the pushrod the same, and add 5/16 inch to this so the pushrod sticks 5/16 inch through the top of the guide bushing when the valve is closed or the cam is not in contact with the pushrod and cut off. Then drill a 5/16-inch hole 1 inch deep and tap same with a 3/8-inch tap sixteen threads to the inch, and file sides of the pushrod at the top so a wrench can be applied to hold the pushrod from turning while making adjustments. Of course the pushrod must be annealed first of all by simply heating to a red heat and allowing to cool gradually in the air, and after these different operations it must be casehardened again by boiling about 2 pounds of cyanide of potassium in a babbitt ladle until it is red hot. Immerse the pushrods and heat for about 10 minutes in this cyanide and immerse in clear cold water. Care should be taken in this operation to avoid being burned by the cyanide. Heat the pushrods before immersing so as to dry them of any moisture and avoid the fumes as much as possible, as they are rank poison. Next make a 3/8-inch by 1-inch cap screw with the head 1/4 inch thick. Caseharden this. Then make a 3/8-inch jam nut 5/16 inch thick, also caseharden. Now assemble the adjusting nut and screw, put the pushrod in place and assemble. Put on the cylinders and fittings, and adjust as in Fig. 4.—H. C. Maher.

The Readers'

EDITOR'S NOTE—In this department Motor Age answers free of charge questions regarding motor problems, and invites the discussion of pertinent subjects. Correspondence is solicited from subscribers and others. All communications must be properly signed, and should the writer not wish his name to appear, he may use any nom de plume desired.

RESILVERING REFLECTORS

Happy, Tex.—Editor Motor Age—Will Motor Age kindly answer the following questions:

1—Where can I get the proper ingredients for resilvering reflectors, and the receipt for applying same?

2—Where can I send them to be resilvered, or where can I secure new reflectors?—Math Grady.

1—It would not be practical to try to resilver your own lamps, as it is a process which requires experienced and skillful manipulation and the use of special equipment.

2—Send them to the manufacturer of the lamp, whose name is generally to be found on the lamp; or to a manufacturer of lens mirrors.

GRAVITY OF GASOLINE

Greenfield, Ind.—Editor Motor Age—Will Motor Age kindly give me the rule for testing the specific gravity of gasoline? What specific gravity gives the best results and most power in a four-cylinder, water-cooled engine?—William A. Hughes.

The specific gravity of gasoline is learned by means of a glass instrument known as a gasoline hydrometer. It has a graduated stem and when allowed to float in the liquid to be tested, the specific gravity is indicated by the distance to which it sinks in it. There is no rule to be observed in testing gasoline, except that the density according to the Beaume scale varies 1 degree to every change of 10 degrees of temperature. That is, if gasoline tests 64 degrees Beaume at 60 degrees Fahrenheit, it would test 63 at 50 degrees Fahrenheit and 62 at 40 degrees Fahrenheit and vice versa. When the specific gravity of a liquid is given, without any mention of the temperature at which the test was taken, the normal temperature of 60 degrees Fahrenheit is understood. As for the specific gravity of the fuel which will give the best results in a four-cylinder water-cooled motor, all depends upon the design and construction of the motor and carbureter and the conditions under which the fuel is to be used. It is claimed that on the Marmon cars which have been so successful this summer in speed contests, the fuel supplied to the motors tested but 56 degrees Beaume, bearing out the claim that there are more heat units in the heavier fuel than in the lighter grades. The heavier the fuel the less volatile it is and the harder it is to start a motor with it, but once the motor is warmed up to such an extent that the heavier fuel can be properly vaporized, the power that it will generate will be greater than when a lighter and more

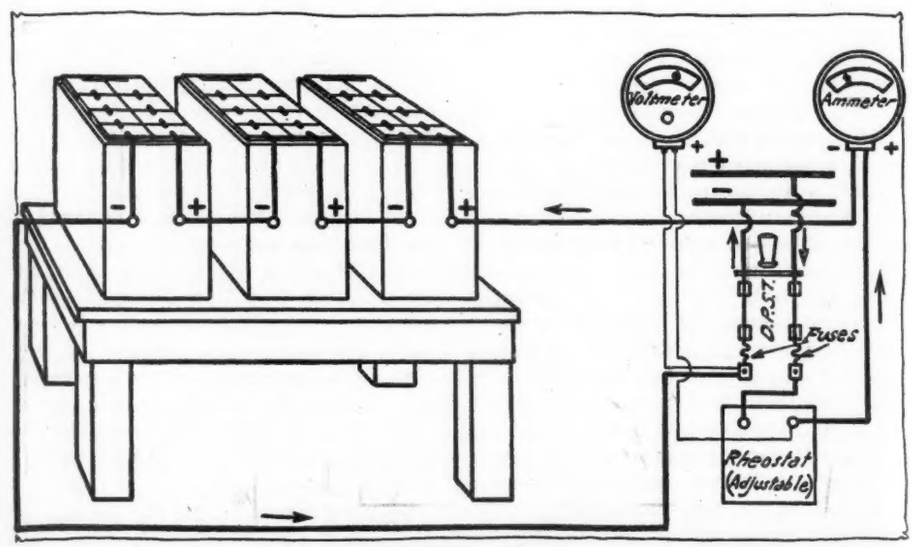


FIG. 2—APPARATUS FOR CHARGING BATTERIES OUT OF CAR

Clearing House

EDITOR'S NOTE—To the Readers of the Clearing House columns: Motor Age insists on having bona fide signatures to all communications published in this department. It has been discovered that the proper signature has not been given on many communications, and Motor Age will not publish such communications, and will take steps to hunt down the offenders of this rule if it is violated.

volatile fuel is used. It must be borne in mind, however, that unless the motor is hot enough to properly vaporize the heavier fuels, it will not give near the efficiency of the lighter and more expensive fuel. The best grade of gasoline for all around purposes tests around 64 degrees Beaume, and for winter use a higher test grade is desirable if the motor is to be kept in a cold garage or allowed to stand idle on the streets for any length of time.

PUT IN NEW RIVETS

Devils Lake, N. D.—Editor Motor Age—Referring to the communication from W. S., of Streator, Ill., relative to adjusting the steering gear on his E-M-F car, I wish to call his attention to the three rivets that hold the sector S to the steering arm. I find in most cases these rivets frequently work loose. Knock out the old ones and replace with new steel rivets. Drive them hot.—H. C. Maher.

TESTING ELECTRIC BATTERIES

Chicago — Editor Motor Age — Will Motor Age kindly tell me how to test and charge batteries in electric vehicles, also the general care of same?—Subscriber.

The subject of testing and charging the batteries such as are used in electric vehicles, and the general care of same, is not one that can be properly covered in this limited space; but the following information given out by the manufacturer and users of Exide batteries may be appreciated: Should there be a decrease in the speed or mileage of a vehicle, the falling off may be due to trouble in the running gear, in the motors, in the connections or in the battery. If the current consumption, as shown by the meter, is greater than normal, the vehicle is running hard, and it should be overhauled. If, however, the current consumption is normal, there may be poor connections or trouble in the battery. Falling off in the capacity of the battery always can be traced to some cause, and when it gives indications that something is wrong, take it out of the vehicle and look for the trouble. There may be a dry cell, due to a leaking jar; some or all of the cells may be in a state of incomplete charge, due to the battery having been run too low and not sufficiently charged; or the plates may be short-circuited, either by the sediment, deposited in the bottom of the jar, getting up to the bottom of the plates or by something that has fallen into the cell.

Short-circuits in a cell are indicated by short capacity, low voltage and low specific gravity, excessive heating and evaporation of the electrolyte. If the trouble cannot be located by the eye, connect the battery in series, as illustrated in Fig. 2, and discharge it at the normal rate through suitable resistance. If a suitable rheostat is not available, a water rheostat may be used. This consists of a receptacle, which must not be of metal, filled with a very weak acid solution or salt water, in which are suspended two metal plates, which are connected by wires through an ammeter, as shown in Fig. 3. The current may be regulated by altering the distance between the plates or by varying the strength of the solution.

As the discharge progresses, the voltage will gradually decrease and it should be frequently read at the battery terminals; as soon as it shows a sudden drop the voltage of each cell should be read with a low-reading voltmeter. While the readings are being taken, the discharge rate should be kept constant and the discharge continued until the majority of the cells read 1.70 volts; those reading less should be noted. The discharge should be followed by a charge until the cells which read 1.70 volts are up; then the low cells should be cut out, examined and the trouble remedied. The specific gravity of the electrolyte of a battery is tested by means of an acid testing set such as B, C and D, Fig. 6, or by means of a combination instrument known as a hydrometer syringe or storometer shown at A, Fig. 6. If the electrolyte is low in specific gravity, assuming that there are no short circuits, due to sediment or other cause, it is evidence: First, of sloppage or a leaky jar, the loss having been replaced with water alone; in which case it should be allowed to fall to 1.250 when fully charged; then gradually restored to normal by addition of 1.275 specific gravity electrolyte when replacing evaporation. Second, of insufficient charge, overdischarge, standing in a discharged condition or a combination of these abuses; any of which mean that there is acid in combination with the plates, which should be brought out into the electrolyte by a long charge at quarter the normal discharge rate. Continue charging until the gravity of the electrolyte stops rising; then adjust to normal, 1.270 to 1.280, by drawing off some of the electrolyte and adding water if it is above normal, and by adding acid if it is below normal. The low cells should be grouped by themselves and charged as a separate battery, care being taken that the positive strap of one cell is connected to the negative strap of the adjoining cell and that the charging connections are properly made. If there is not sufficient resistance in the charging rheostat to cut the current down to the proper point, use water resistance referred to above in series with it. While a cell is being treated, when possible, the cover should be re-

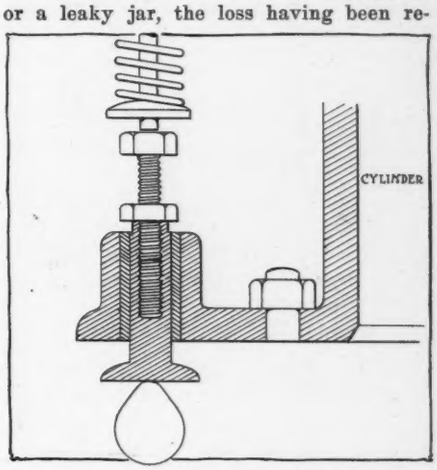


FIG. 4—E-M-F PUSHRODS RENDERED ADJUSTABLE

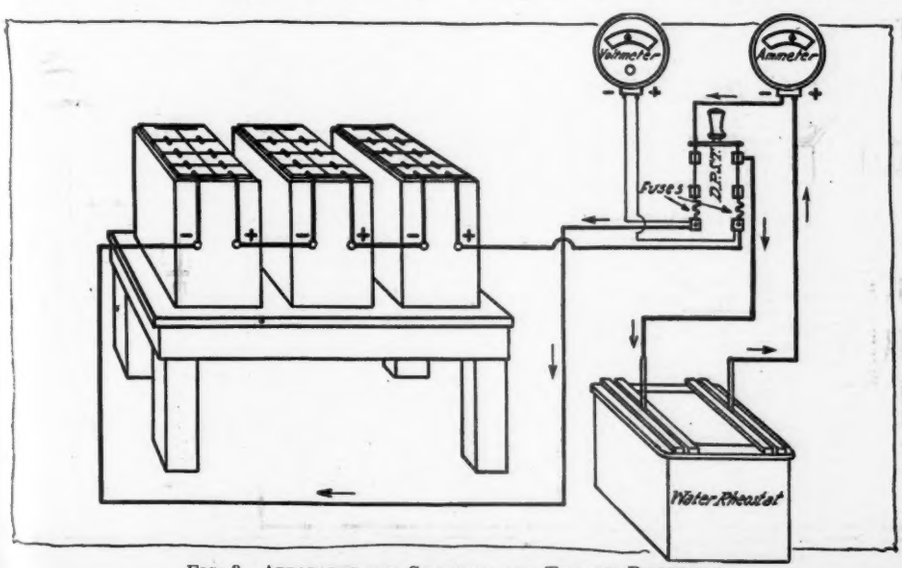


FIG. 3—APPARATUS FOR CHARGING AND TESTING BATTERIES

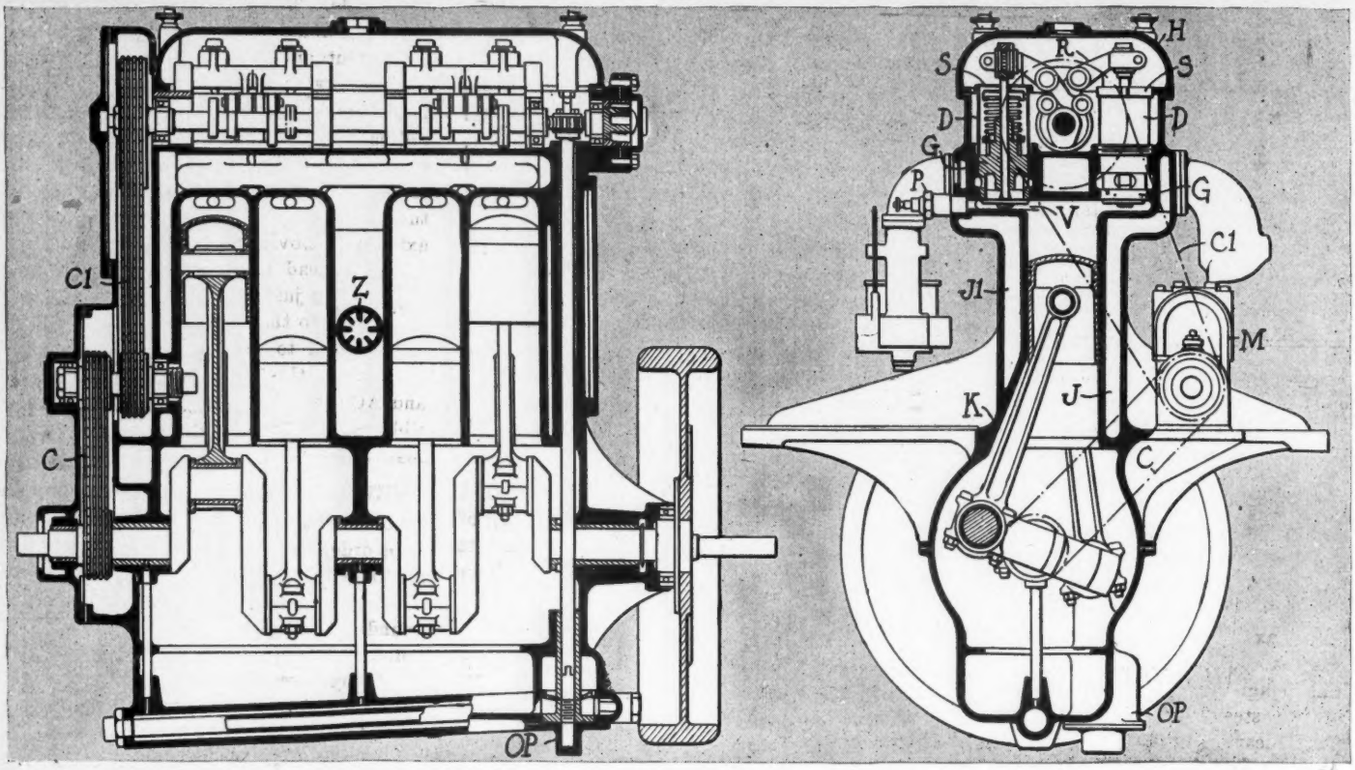


FIG. 5—SIDE AND END SECTIONAL VIEWS OF GERMAIN MOTOR SHOWING CHAIN VALVE-OPERATING MECHANISM AND OTHER INTERESTING FEATURES

moved; if sealed, the compound can be loosened by using a hot putty knife.

Very complete instruction books are generally supplied for the asking, by the manufacturers of vehicle batteries, which you would find both interesting and instructive.

SOME FOREIGN MOTOR DETAILS

Chicago—Editor Motor Age—The stories in Motor Age on the Olympic show, together with illustrations of the different car constructions have furnished a special insight into the new designs being brought out abroad. Does the silent chain give as satisfactory drive for the camshaft, and if so what are its advantages? How is it possible to use the long-stroke motors and still have sufficient room for the connecting rods in the lower ends of the cylinders? Have you additional details on the construction of the Germain motor showing its overhead valve construction?—Reader.

The chain-drive has proven entirely satisfactory for driving the camshaft. The chain for such purposes was first introduced by the Daimler company on its Silent Knight motors. Its introduction aroused a storm of criticism, but now carries the approval of many of the leading concerns. In Fig. 5, showing a side and end section of the Germain motor the use of the chain is shown. The shorter chain C drives from the crankshaft to the magnetoshaft and the longer chain C1 from the magnetoshaft to the overhead camshaft. These chains are used because they give a quieter drive and quietness is one of the great aims of the European designers and motor car manufacturers.

In long-stroke motors the problem of sufficient room for the connecting rod is generally solved as shown in this illustration, namely, by offsetting the crankshaft and cutting away the cylinder casting at one side, as shown at K. This arrangement gives an entirely satisfactory design. It is customary with some of the long-stroke motors with compressions as high as 90 pounds are used to employ special waterjacketing, as shown herewith, the waterjacket J at one side extending to the base of the cylinder and the jacket J1 at the opposite side extending as low as possible.

The overhead valve arrangement employed in this motor is shown. Perhaps the leading detail connected therewith is that a cover piece H enclosing the entire mechanism which operates in oil is used. The valves V are located in particularly small offsets, so that all the explosive charge is directly over the piston head. Each valve is carried in a cage G; a sleeve D entirely encloses the valve spring and a spanner S holds the cage and sleeve in place. The location and arrangement of the rocker arms are shown.

One detail of this motor is the bringing of the intake manifold Z through the waterjacket between the third and fourth cylinder, as well as the use of internal ribs in the manifold. The ribs are used to heat the mixture and carrying the manifold within the waterjacket keeps it warm so that condensation is avoided.

NOTICE

Motor Age has received communications addressed to the Readers' Clearing House from the following named towns and nom de plumes:

Seattle, Wash.—H. L.
Cincinnati, O.—A Reader
Duluth, Minn.—A. F. C.
Council Bluffs, Ia.—J. L.
Lawton, Okla.—A. B. C.
Charleston, Ill.—Subscriber
Martelle, Ia.—A Subscriber
New York—A Subscriber
Hartford City, Ind. Coil
Denver, Colo. Reader
Roseland, Nebr.—A Subscriber
Chicago—Reader
Vincennes, Ind.—Chalmers 30 Driver
Vancouver, B. C.—An Interested Reader
Chicago—Subscriber
————A. A. H.

These communications will be held until the proper signatures have been received. All communications written over a nom de plume must bear the writer's signature, otherwise such communications will not be answered. These signatures are wanted as proof of the authenticity of the inquiries.—Editor Motor Age.

STORING CAR IN WINTER

Stanley, N. D.—Editor Motor Age—Will Motor Age, through the Readers' Clearing House, kindly give me a few pointers on how to store a car during a North Dakota winter? The car is an Inter-State touring car, new this season, and I wish to give it the best of care. Would like to know how best to care for the various parts, including tires.—Subscriber.

An article in Motor Age, November 10, tells of the winter care of cars and how to store them. This story goes into the subject in detail, telling a new owner just what to do with his car when storing it for cold winter weather.

THEORY OF WHEEL THROW

Chicago—Editor Motor Age—Will Motor Age kindly explain how the throw of the front wheels is established on motor car drafting-room layouts, relative to the steering knuckle, etc.? I have learned from

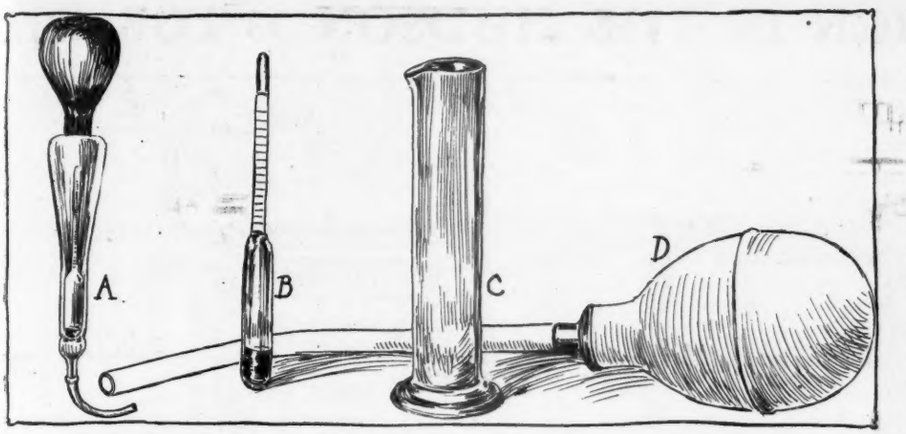


FIG. 6—INSTRUMENTS REQUIRED IN TESTING ELECTROLYTE OF STORAGE BATTERIES

different draftsmen that certain points on the rear axle of the car and the center of the steering knuckle are the terminals of some imaginary line, beyond which the rim of the front wheel—or the arm of the front axle, steering knuckle, must not pass—and by others I have been told that this imaginary line runs from the center of the steering knuckle to some other point near the center of the rear axle. As I cannot comprehend the why and wherefore of this apparent secret, hence this inquiry.—A Reader.

In the eighteenth century, Ackerman discovered that a vehicle, on a curve, to perform properly, had to be provided with such tie rods for the front wheels as would enable them, respectively, to roll on independent orbits, not to a common radius, but from a common axis. Fig. 7 is offered to illustrate the point to be made, in which it is shown that true rolling motion of all the wheels will be realized when the car is going straight ahead. When the wheels are canted, as in negotiating a curve, if the tie rod arms are parallel, since they are connected by a rigid tie rod in practice, the radius O A will be the inner wheel radius C C1, of turning, but the outer wheel will cant to the same angle, and the arc S S′ will be described, which arc is not parallel to the arc C C′, and the wheels will not roll perfectly; in fact, the outer wheel will drag.

But if the tie rod arms are to the rear of the axle and converging, in the manner as will be presently shown, it is then that the two front wheels will roll on parallel orbits to a common center O, Fig. 7, and the inner wheel will have a radius O A, and the outer wheel will have a radius of turning O B. As the figure shows, the arc R R′ is parallel with the arc of the circle C C′, under which conditions the wheels will perform their functions without dragging, and the tires will avoid damage in the process.

The Ackerman-Jeantaud system of steering, a definite advance over the original idea of Ackerman, is illustrated in Fig. 8; in this the arms O L and O′ L′ connected by the tie-rod L L′ converge to the rear, and are parallel with and cut by the line A L O on the left side and A L′ O′ on the right side. The point A is at the center of the rear axle. In turning, the point A moves out on the rear axle plane to the point A′, with the result that the turning radius of the car becomes that of the radius A′ O′ for the inner wheel, and the radius of turning of the outer wheel becomes A′ O, so that the two canting wheels turn on parallel orbits around a common axis, A′. Obviously, the arms L O and L′ O′, instead of converging to the rear, would serve just as well if they were made to diverge to the front, provided only they be designed to remain in the same plane as a projection of the line AO for LO and AO′ for L′O′. This is not always possible in practice because the spokes of the road wheels are in the way.

AVERAGE ENGINE COMPRESSION

Meadow Grove, Neb.—Editor Motor Age—In order to settle a dispute I would like to know, through the Readers' Clearing House, what is the average compression in pounds per square inch in motor car cylinders or any other gas engines. About what pressure is there per square inch when the gas is exploded? My friend claims that about 90 pounds is all the pressure that is ever created in a gas engine cylinder. I claim it is a great deal more at time of explosion. What is correct?—L. W. H.

The average compression in the cylinders of ordinary motor car engines ranges between 50 and 70 pounds per square inch, and the explosive pressures range approximately between 125 to 300 pounds to the square inch. A much greater variation is to be found in the various gas and oil engine designs. There are motors adapted to use kerosene for fuel which are designed to have a cold compression, or compression pressure as you call it, as high as 250 pounds to the square inch, and the explosion pressure is considerably more.

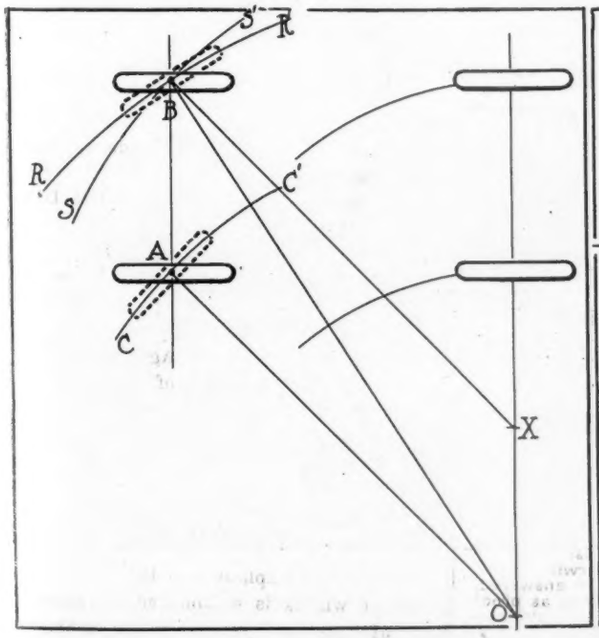


FIG. 7—ILLUSTRATING THE ACKERMAN THEORY.

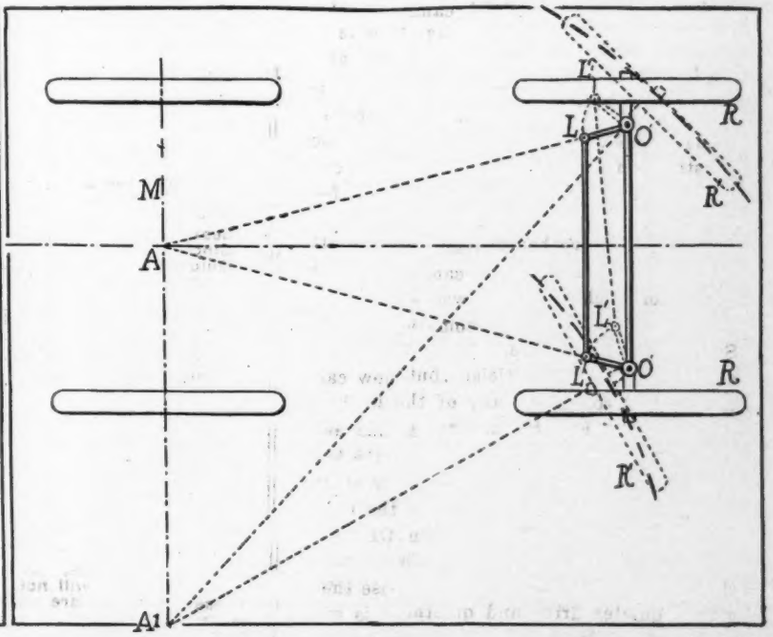


FIG. 8—THE ACKERMAN-JEANTAUD THEORY OF STEERING-KNUCKLE DESIGN

POINTS OF DESIGN IN THE HUDSON 33 FOR 1911

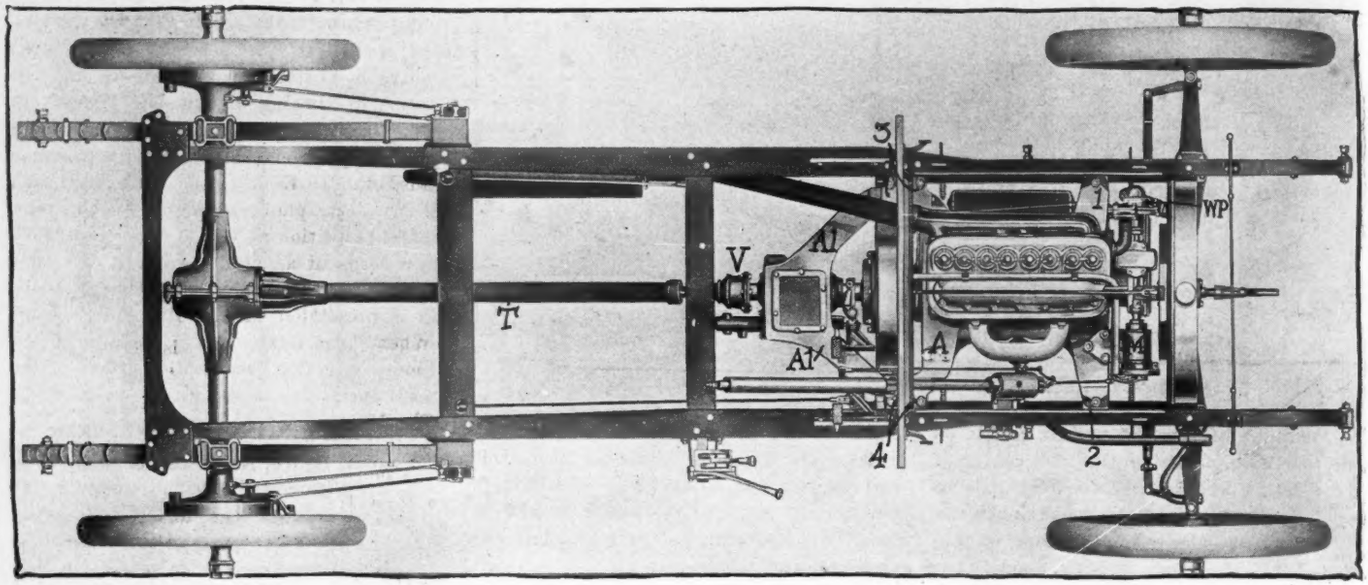


FIG. 1—HUDSON 33 CHASSIS SHOWING THE FOUR POINTS OF MOTOR SUPPORT AT 1, 2, 3 AND 4 DIRECT ON THE SIDE MEMBERS OF THE MAIN FRAME. THE GEARBOX IS CARRIED AS A UNIT WITH THE MOTOR THROUGH THE TWO ARMS A1, WHICH CIRCLE THE FLYWHEEL AND BOLT TO THE REAR FACES OF SIMILAR ARMS A ON THE CRANKCASE

HUDSON 33. This is the name of the new chassis brought out by the Hudson Motor Car Co. for next year. It takes its name from the rated horsepower. Its cylinders have 4-inch bore and 4½-inch stroke. This chassis is not the 1910 one carried over with a series of improvements, but a new design throughout, a design in which not a few of the present constructions are incorporated and yet a new type. It differs radically from the present type and yet agrees with it in not a few respects. Like the present car the four cylinders are cast in one block, but comparisons stop here. The Hudson 33 possesses a new design of combined motor and gearbox giving a unit construction of these two chassis essentials. Fig. 1 shows how this is accomplished. The motor is supported direct on the frame at points 1, 2, 3 and 4. The two rear motor arms A have bolted to them also the two arms A1 forming the legs of the gearbox, these legs spreading and spanning the flywheel. There are two bolts connecting each leg of the gearbox with the motor, giving a rigid construction. The alignment of the crankshaft, clutchshaft and shaft of the gearset is secured by this construction.

But there are other respects in which the Hudson 33 is different from its predecessors: Fig. 2 shows a view of the front end of the motor. Across the front is a transverse shaft driving the magneto M at the right side of the car and the water pump WP at the left side. This relationship appears reversed in the illustration, but is correct when the observer is seated in the car. This transverse shaft may perhaps be designated an European construction. The Renault has employed it for several seasons and within the last few years upward of a score of the leading continental concerns have adopted it in one modification or another. Accessibility might be advanced as the reason for its use. Mounting a magneto in this position is the acme of accessibility. The breaker box end of the magneto is outward so that with half of the hood raised any part of the mechanism can be examined. The magneto is readily demountable through the jaw coupling J. Although not illustrated, the high-tension leads from the magneto are carried in a fiber tube over the cylinder heads to the spark plugs.

What can be said regarding the accessibility of the magneto applies with equal force to the water pump on the opposite end of the shaft. The pump is ideally located, off by itself, with plenty of room to turn up the grease cups without rubbing up against the hot exhaust pipe. It is an economic location also due to the exceptional short length of hose needed to connect from the water intake pipe E to the base of the radiator and also the 6-inch length needed from the return pipe E1 to the top of the radiator. This illustration, Fig. 2, also shows how the cold water enters the jacket close to the valve ports which is the hottest part due to the spark plugs being mounted over the valves and this location becoming the center of the combustion area. This is condueive to good cooling. But Fig. 3, a vertical section of a cylinder, shows further why the cooling problem should be a settled one. There is specially large water space J2 around the valve chamber, waterjacketing as it does the valve stem. In addition there is the water space J1 surrounding the valve seat. Added to this is the cutting away of the entire head of the

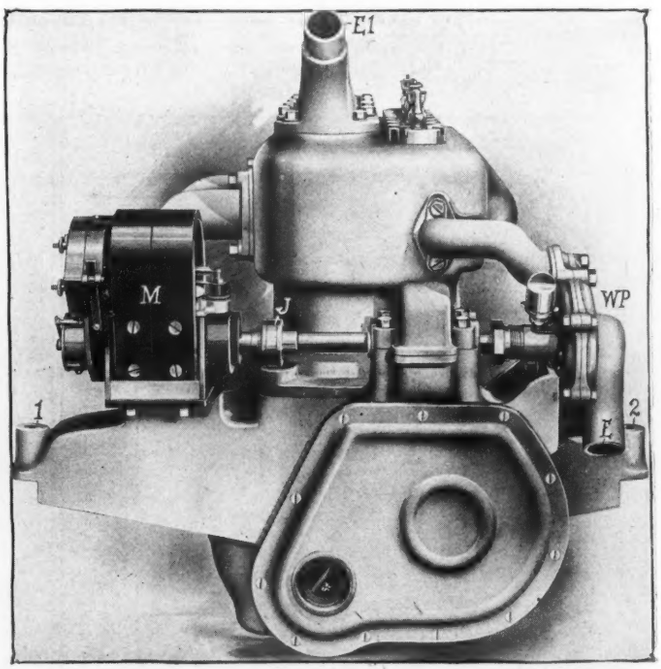


FIG. 2—END VIEW OF HUDSON 33 MOTOR SHOWING THE TRANSVERSE SHAFT, WHICH DRIVES THE MAGNETO M AT THE ONE END AND THE WATER PUMP WP AT THE OTHER END. TWO VERY SHORT HOSE LENGTHS ARE NEEDED TO CONNECT THE WATERJACKET SYSTEM AT E AND E1 WITH THE RADIATOR. 1 AND 2 SHOWS THE FORWARD MOTOR SUPPORTS

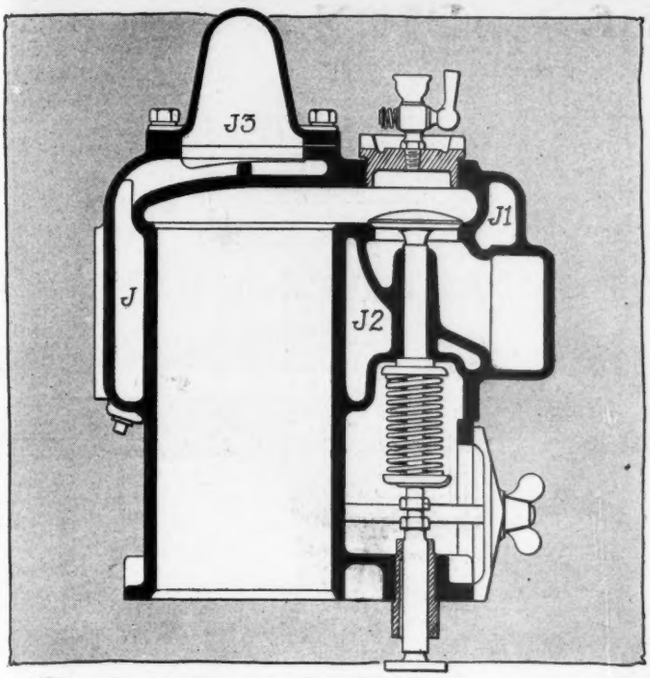


FIG. 3—VERTICAL END SECTION THROUGH THE HUDSON 33 MOTOR SHOWING THE LARGE WATERJACKET SPACES J AND J1 AROUND THE VALVES AS WELL AS THE SPECIALLY LARGE COOLING AREA OVER THE CYLINDER HEADS. THE COVER PLATES FOR THE VALVE SPRINGS AND TAPPETS

cylinder casting and fitting a large hollowed-out cover plate which, as illustrated in Figs. 4 and 5, forms in front a tubular connection to take the 6-inch hose length. As Fig. 3 shows this construction leaves an enormous water space J3 over the entire cylinder heads, which is next to valve cages, the part most necessary to keep well cooled. Because of this ample coooling facility this motor has already given a good account of itself in long bench tests in which the cooling details have been subjected to a hard test.

No Fan Is Used

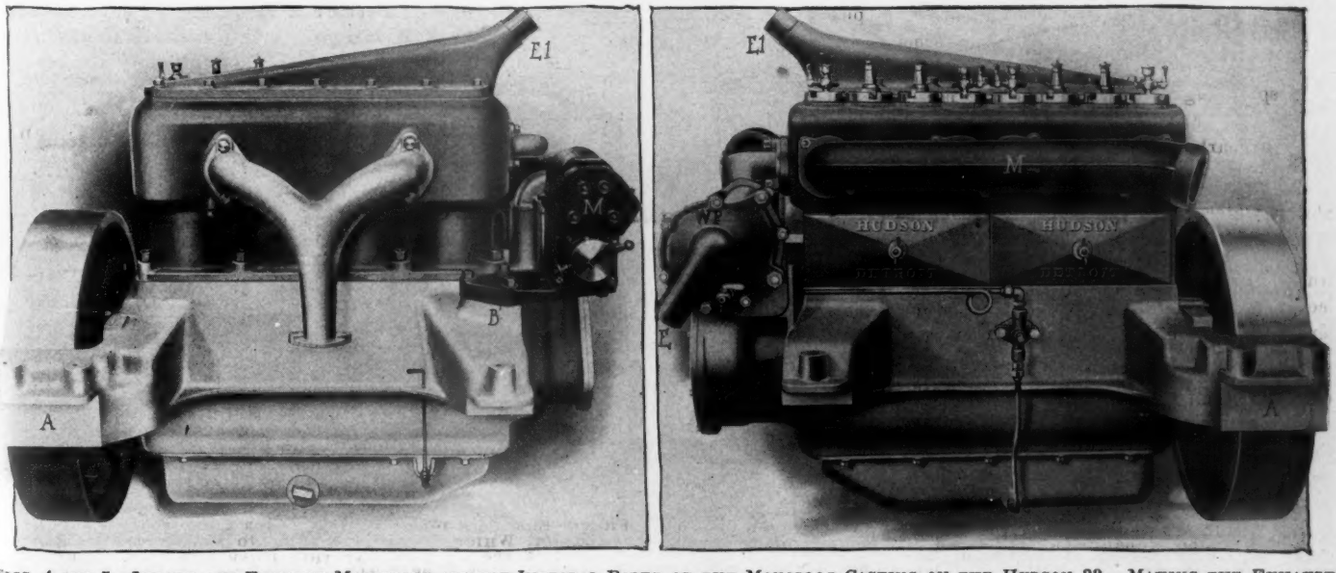
A point not touched upon in the cooling system thus far is the absence of a fan back of the radiator, but the substitution of one in the fan blades forming the spokes of the cast steel flywheel. The flywheel has six of these spokes. In connection with this flywheel design is the use of a sheet steel dust apron which serves to make a fairly tight compartment so that the flywheel creates a steady air current through the radiator and back around the motor.

The Hudson 33 motor has some more interesting details. Although the cylinder casting is an L type —with both sets of valves on one side— yet the intake manifold, Fig. 4, is on the right side and the exhaust manifold M, Fig. 5, is on the left side. This is quite unusual with this type of motor. In general with monobloc castings the manifolds are formed as corporate parts, but not so here. The exhaust manifold is made separate so that in case of racing short horizontal exhaust pipes may be fitted. It would be difficult to incorporate the intake manifold with the casting and have it on the opposite side from the valves. As it is a Y pipe is used and each branch leads to a passage within the casting, which passage leads through the waterjacket to the opposite side where the passages enter the intake valve cages. Carrying the gas through the waterjacket is a construction used abroad on several cars for next season. It accomplishes the same result as waterjacketing the intake pipe which has been done on some of the highest-priced American cars at the present time.

The left side of the motor, Fig. 5, shows still another Hudson detail, namely, using two rectangular plates for covering the valve springs and tappets. This is not new in motor car design, but is generally confined to higher-priced machines. Perhaps Fig. 3 shows these covers to better advantage. Each is secured by a wing nut. These plates form an oil-tight cover and in addition to keeping the oil in, keep the dust out and greatly reduce the noise caused by the tops of the pushrods striking upon the bottom of the valve stems. When these valve cover plates are removed the valve springs are as accessible as if the plates were not used.

The Motor Internals

Having briefly reviewed those parts of the motor that can be seen from the outside a few sentences on the parts concealed will be in order. The internals are always interesting, because they are the parts that do the work and generally give the trouble, when it has to come. Two castings house the internals of this motor, one being the barrel crankcase and the other the cylinder block. Into the barrel crankcase is inserted the two-bearing crankshaft. Two-bearing shafts are becoming popular in monobloc castings. Where but two are used the bearings must be long and the shaft diameter larger than usual. Both are here. The front bearing is 3½ inches long and 2⅛ inches in diameter. The rear one is bigger; it is 4 inches long and 2¼ inches in diameter. This length and diameter give a bearing surface in square inches considerably greater than found in many motors in which three bearings are used. The camshaft is also carried on two bearings, both $1\frac{7}{16}$ inch in diameter. Using a large-diameter camshaft has made possible the use of large cams giving an easy throw to the pushrods and the required lift without much noise.



FIGS. 4 AND 5—INTAKE AND EXHAUST MANIFOLDS ARE NOT INTEGRAL PARTS OF THE MONOBLOC CASTING ON THE HUDSON 33. MAKING THE EXHAUST MANIFOLD SEPARATE ALLOWS OF FITTING SPECIAL MANIFOLDS FOR RACING PURPOSES. THE TWO COVER PLATES FOR THE VALVE SPRINGS GIVES THE MOTOR A CHARACTERISTIC SLAB-SIDE APPEARANCE AND ONE OF GREAT SIMPLICITY

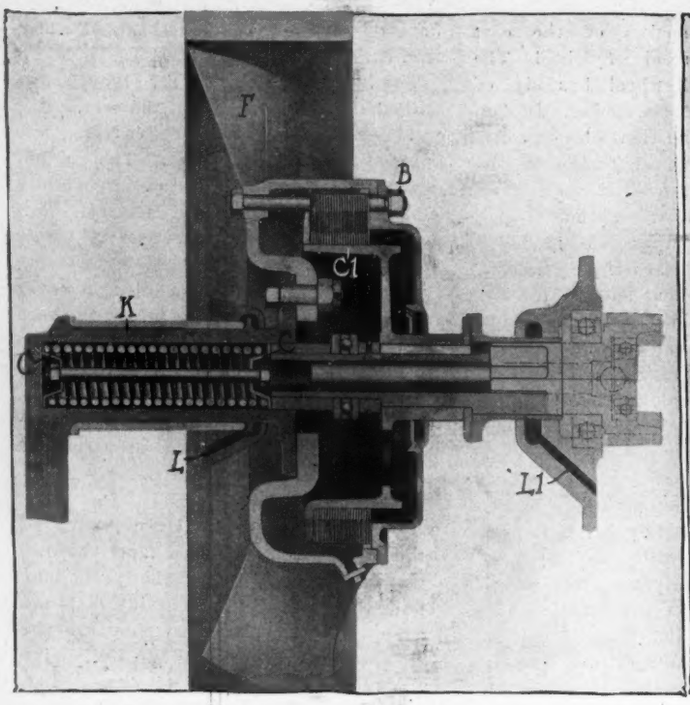


FIG. 6—AN INTERESTING DETAIL OF THE MULTIPLE-DISK CLUTCH IN THE HUDSON 33 IS THAT THE SPRING IS CARRIED BETWEEN TWO BUTTONS C HELD TOGETHER BY A LONG BOLT SO THAT THE EXTENSION OF THE SPRING IS LIMITED TO ⅝ INCH, AND IT CAN BE REMOVED AND INSERTED AGAIN MUCH AS THE CARTRIDGE IS INSERTED IN A RIFLE

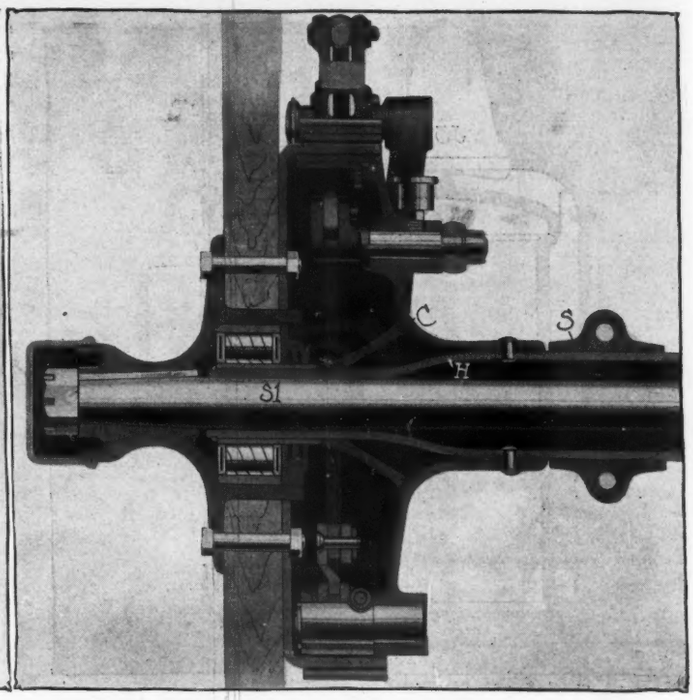


FIG. 7—THE REAR AXLE CONSTRUCTION OF THE HUDSON 33 IS SHOWN IN THIS ILLUSTRATION. THE DRIVE SHAFT S1 DOES NOT CARRY ANY OF THE CAR LOAD IN THAT THE HYATT ROLLER BEARING SHOWN WITHIN THE WHEEL HUB IS OUTSIDE OF THE AXLE SLEEVE H, GIVING A FLOATING CONSTRUCTION. THE WHEEL IS A TAPER FIT ON THE END OF THE DRIVE SHAFT AND IS KEYED IN PLACE

The motor lubrication is on the circulating system. The oil supply rests in a reservoir beneath the crankcase. A horizontal force feed pump driven by an eccentric from the camshaft elevates the oil to the timing gears at the front end. The oil drains from the timing gearcase back into the crankcase, filling the compartments beneath the connecting rods to the proper level and then draining back into the reservoir. The pump also operates a sight feed on the dash and draws its supply from a large strainer so that the danger of the strainer becoming plugged and the oil feed stopping is avoided. The oil level is determined by a try cock on the outside of the reservoir, there being a handle as shown in Fig. 4 extending up alongside the front motor arm. In Fig. 5 is shown the oil pump location on the side of the crankcase together with the oil lead from the reservoir to the pump and another from the pump to the timing gearcase.

In Fig. 6 is shown the multiple-disk clutch which takes the place of the cone type used on previous Hudson models. This clutch consists of the usual alternate sets of disks, one supported through a series of bolts B carried in the flywheel F, and the other set through a carrier C1 which is connected with the shaft to the gearbox. Contrary to general practice the spring engaging these disks is between the clutch and the motor instead of between the clutch and the gearbox. This is made possible by inserting the clutch spring within the hollow end of the crankshaft K. This spring is contained between two cups C which are held together by a bolt so that the spring cannot expand more than ⅜ inch. This facilitates the removal and replacement of the spring, in that it is inserted the same as a cartridge in a gun. This detail of construction economizes space and allows the gearbox being compactly located immediately back of the flywheel. The clutch complete may be removed by taking off the nut from the bolts D and four screws which carry the clutch cover, the gearbox having previously been removed.

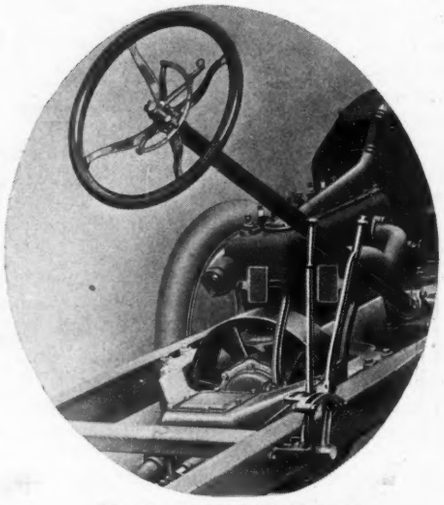


FIG. 8—HUDSON 33 CONTROL

Three-Speed Gearset

The Hudson gearbox is a three-speed selective set, illustrated in Fig. 9. It is of the vertical design, that is, having the mainshaft MS directly above the secondary shaft SS. The forward end of the mainshaft is supported on a ball bearing B within the master pinion G of the set.

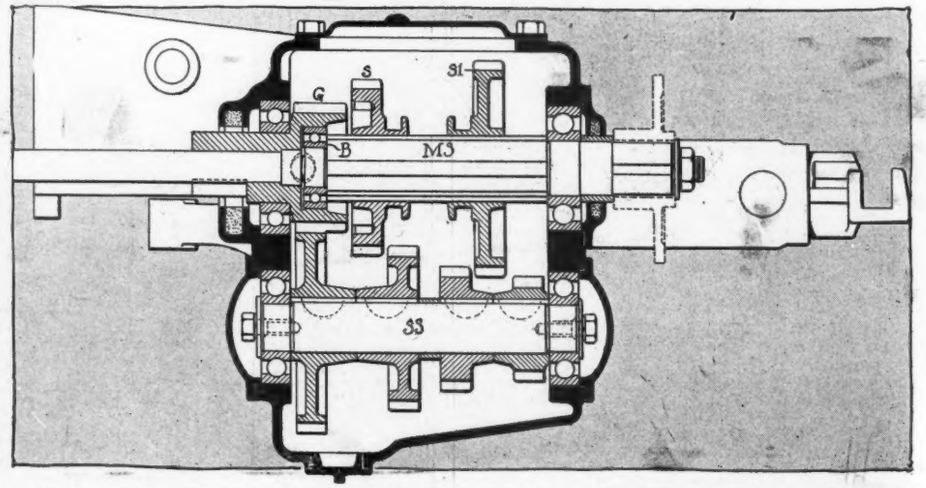


FIG. 9—IN THE HUDSON 33 GEARSET, BOTH SHAFTS ARE IN THE SAME VERTICAL PLANE. THE MAIN SHAFT MS CARRIES THE TWO SLIDING UNITS S AND S1, WHICH GIVE THE THREE FORWARD SPEEDS AND REVERSE. A DRAIN PLUG IN THE BASE OF THE CASE ALLOW FOR READY REMOVAL OF OLD LUBRICANT

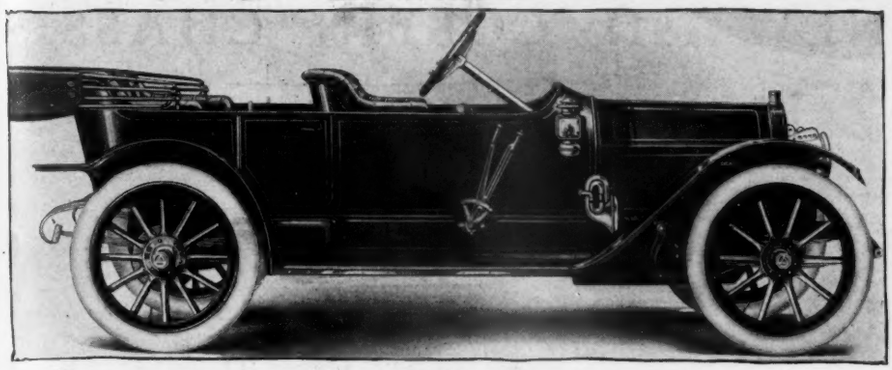


FIG. 10—HUDSON 33 WITH TORPEDO BODY

For direct drive the sliding unit S, fitted with an internal gear to mesh with the pinion G, is moved forward; for intermediate speeds this unit is moved to the rear; and the second sliding unit S1 for low speed and reverse is also carried on the mainshaft. In order to remove the grease a large drain plug is located in the bottom of the case. Either of the driveshafts may be taken out by first removing the end plates, which carry the bearings, and then taking the shaft out through the top.

The general features of Hudson construction are carried to the back axle of the car, which is illustrated in Figs. 7 and 12. This axle is a floating type, as Fig. 7 shows, the axle sleeve H extending outward and carrying the road wheel, so that the Hyatt roller bearing is outside of this axle sleeve, thereby bringing the entire weight of the car on the sleeve and leaving the driveshaft free to do the propelling work. The brake support C is riveted in place and the spring seatings are movable on the sleeve. The inner ends of the driveshafts are carried on nickel-steel Hyatt roller bearings. In conjunction with the axle, as shown in Fig. 1, is the torsion tube T carried on the propellershaft at its forward end and with the one universal joint in the system located immediately in rear of the gearbox. Both sets of brakes are carried on the rear wheels, the external for regular service and the internal for emergency.

It is in the running gear that some more Hudson features appear. The side section of the mainframe attains a maximum width near the center of the chassis where the flanges are 3¼ inches wide and the vertical depth of the side member 4 inches. From this point there is a gradual taper

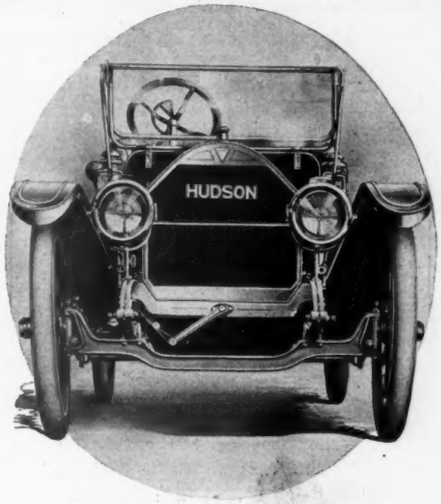


FIG. 11—HUDSON 33, FRONT VIEW

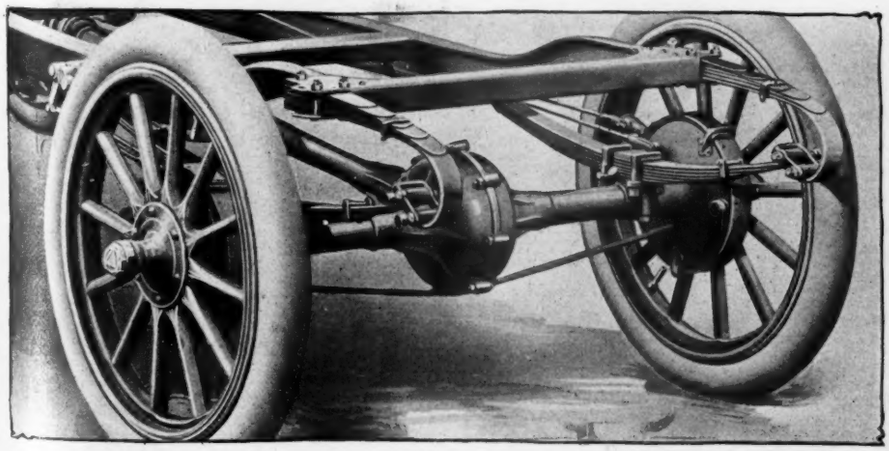
to the rear. The fourth or rear crossmember, as shown in Fig. 12, projects beyond the side members and embraces the upper quarter of the rear spring, thereby eliminating the necessity of a side bracket. As shown in Fig. 1, the cross member next to the rear is made large and encloses all the cross rods for the operation of the brakes, by these rods being placed within the channel. Hand-in-hand with this frame construction goes a large number of drop forgings connected therewith, among which may be noted the spring shackles which are forged with a cross bar, see Fig. 12, so that the turning over of the shackle is eliminated. In the springs case-hardened bolts are used throughout and grease cups are fitted to every one. A detail in conjunction with the springs is the unusually large spring seats introduced to avoid breaking of the springs. The springs are held to these seats by metal pads on both axles, these pads being held down by two nickel steel spring clips. The front axle is an I-beam forging 2¼ inches deep. Ball bearings are used for carrying the front wheels. The steering gear is a worm and gear, the latter can be put in four different positions presenting as many new and unworn surfaces to the worm. Ball thrusts are furnished for adjustment. Leather boots are used to protect steering connections. The strength apparent throughout the entire running gear is also seen in the wheel which takes 34 by 3½-inch tires. The front wheel and flanges have 10 bolts and the rear five. The spokes are 1⅜ inch in diameter.

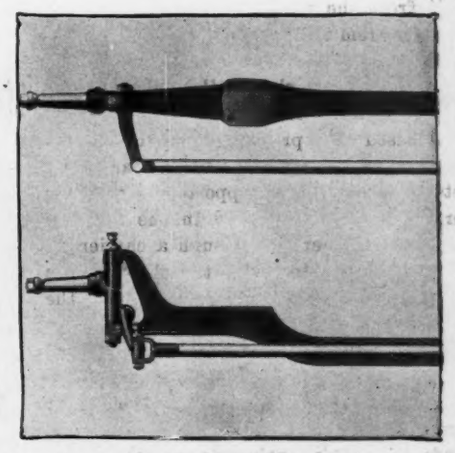
MOTOR CAR LITERATURE

An elaborately gotten up brochure is the 1911 catalog of the Pierce-Arrow Motor Car Co., Buffalo, N. Y., which features in a most attractive style its models for the 1911 season. It is bound in a brown double cover with the words "Pierce-Arrow" across the top embossed in gilt, and at the bottom the words "Motor Cars" embossed in brown.

The Selden Motor Car Co. has issued an advance announcement in the form of a folder of its 1911 Selden cars.

"Warren-Detroit" in embossed gilt letters across the top of the double cover pages is the title of a conventional catalog the Warren Motor Car Co., Detroit, Mich., has just issued detailing the Warren-Detroit 30 for the season of 1911.





FIGS. 12 AND 13—REAR AND FRONT AXLE CONSTRUCTION ON THE HUDSON 33, THE THREE-QUARTER ELLIPTIC REAR SPRINGS ARE ANCHORED AT THEIR UPPER PART BETWEEN THE FLANGES IN AN EXTENSION OF THE REAR CROSS MEMBER OF THE FRAME. THE FRONT AXLE IS AN I-BEAM FORGING, WITH INTEGRAL SPRING SEATS AND WITH THE TIE ROD IN REAR

MODEL 40—A NEW 1911 CORBIN CHASSIS

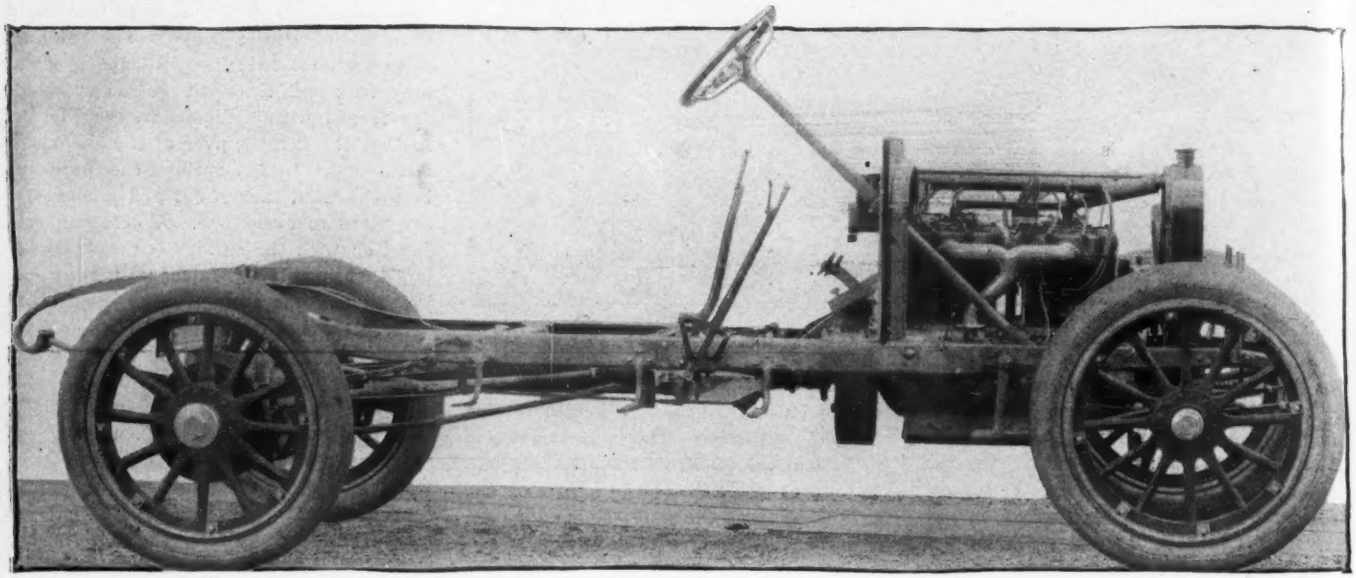


FIG. 1—CHASSIS OF CORBIN MODEL 40, A NEW TYPE WITH 4¾-INCH BORE AND 5½-INCH STROKE. THE CYLINDERS ARE CAST IN PAIRS AND A THREE-BEARING CRANKSHAFT IS USED. OTHER NEW POINTS ARE CIRCULATING SYSTEM AND FLOATING REAR AXLE

EXPANSION is the best word to use in designating the policy of the Corbin Motor Vehicle Corporation for 1911. This expansion is exemplified in the new Corbin 40 chassis which has already been announced for the approaching season. This chassis is listed in addition to models 18 and 30, both of which are continuations of the 1910 models with certain modifications. The 40 uses a larger motor than heretofore seen in Corbin cars. It is 4¾-inch bore and 5½-inch stroke.

For the present the Corbin 40 is under consideration, and the following paragraphs apply specially to this. This new model shows in all perhaps six, what might be termed, important changes over previous types. For the first time the company has cast the cylinders in pairs in contrast with separate castings used up to and including the present year. Casting them in pairs has resulted in structural change in the motor construction, namely, in the carrying of the crankshaft on three bearings instead of five. These three bearings, Fig. 2, are designated 1, 2, and 3. All three are plain ones fitted with die-cast white metal bushings. The twin cylinder castings are best shown in Figs. 3, 4, and 5. The valves are carried on opposite sides and the jackets follow that de Dion design by tapering to the bottom thereby giving a compact and clear cut fit. Placing the valves on opposite sides has given ample room for large diameter, the exact size of which does not appear.

Use Circulating Lubrication

There is in conjunction with the new Corbin 40 motor another motor change which is a particularly important one, namely, the circulating system of oiling the motor parts. Heretofore the circulating system has not been employed, but on the 40, as Fig. 4 shows, the base of the crankcase carries an integral reservoir R which carries the oil supply. Mounted externally on this reservoir is the gear oil pump OP driven in a conventional manner from the camshaft. The oil is raised by the pump through the main lead L. This lead enters the crankcase beneath the motor arm and is continued in the form of a coreway in the expansion L along the side of the crankcase. From this expansion are three leads L1 to the front crankshaft bearing, L2 to the middle bearing, and L3 to the rear bearing. These three short lengths of pipe are shown. The base of the crankcase K1, Fig. 2, does not appear to be divided into compartments, so that a splash lubrication is apparently not relied upon. The overflow from the crankshaft bearings is doubtless splashed by the lower ends of the connecting rods into the cylinder walls as well as the wristpin bearings. On the outside of the motor is an oil gauge O1 in which works an indicator carried on a stem of a float which rests within the oil reservoir. This affords a handy means of gauging the oil level.

The structural details of the inside parts of the motor are shown in Figs. 2 and 3. In Fig. 2 the spiral pinion on the forward end of the crankshaft is in position and in Fig. 3 are shown the spiral gears G on the camshafts. This type of gear is used to reduce noise, which is one of the big aims of the engineering departments at the present time. Large diameter camshafts are used for the intake and exhaust, the cams on both being keyed and pinned in position. On one camshaft is the bevel B for driving the oil pump shaft and on the other is the bevel B1 which drives

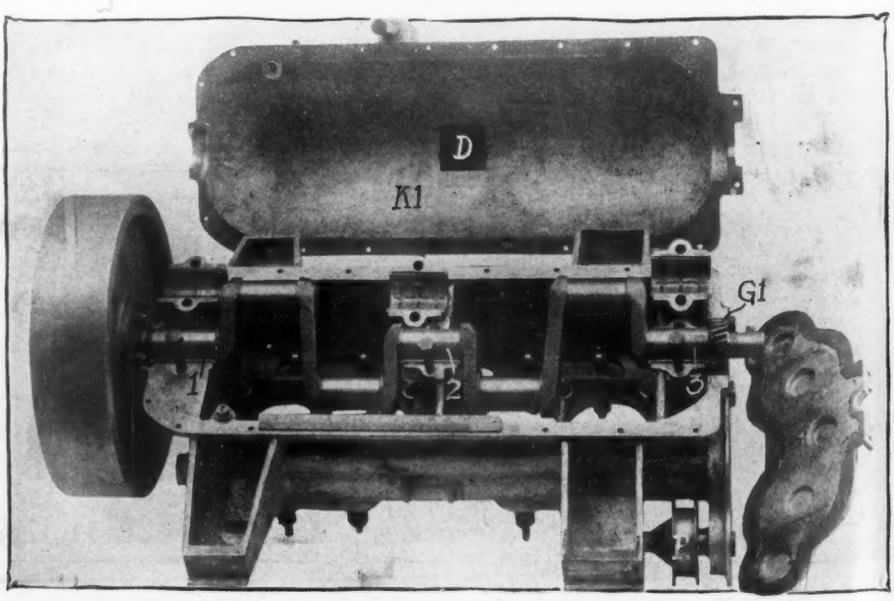


FIG. 2—THE THREE-BEARING CRANKSHAFT ON THE NEW CORBIN 40. K1 SHOWS THE LOWER HALF OF THE CRANKCASE, WITH A SCREENED OPENING D THROUGH WHICH THE OIL DRAINS BACK INTO THE OIL RESERVOIR

the timer distributor TD. The connecting rods are of the marine type construction. Four piston rings are carried above the wristpin.

The cooling features of the Corbin, in addition to the usual integral waterjacket, comprise a centrifugal pump located centrally on the left. It is driven from the same shaft which carries the pulley P for driving the fan. In the shaft is a jaw coupling J1 inserted to facilitate the removable of the pump. As is customary in T-type motors the cold water from the radiator enters the exhaust valve cages immediately beneath the valve, which is the one point in the entire system that is to be kept as cool as possible. The fan is furnished with the usual eccentric adjustment.

Standard Ignition System

Although model 40 Corbin is a new model, yet the ignition system, which has been used for several seasons on Corbin cars, is continued. It is a double set: The major half of the system is a high-tension magneto with leads direct to the plugs; the minor half consists of a battery, a step-up coil, and a combined timer-distributor carried on the motor. The use of the timer-distributor reduces the length of the high-tension cables which are confined to one lead from the coil to the distributor, and four from the distributor to the plugs.

Since its entry into the field of the four-cylinder cars the Corbin company has made use of the cone clutch, which is continued for the coming season. The cone is leather faced and an easy system of leverages is adopted. Heretofore in Corbins the motor, clutch and gearbox have constituted a unit, in that the lower half of the crankcase was continued rearward enclosing the flywheel and the gearbox continued forward to meet it, thereby giving a satisfactory unit construction. On the new 40 this unit idea has been discontinued and the gearbox is now a separate unit mounted amidship, with a universal coupling between it and the clutch. The general design of the gearbox is shown in Fig. 7, which shows it with the cover removed. The gearbox is made in upper and lower halves, the former carried rigidly at three points, one to the front and two in rear. The design of this set has not been altered for upwards of 5 years, but in the new model both shafts and gears are heavier. As in previous models 3½ per cent nickel steel is used for them. In all five F. & S. annular ball bearings are employed, two, 1 and 2, carrying the secondary shaft, and 3, 4 and 5 carrying the mainshaft. The use of two bearings, 3 and 4, for the short mainshaft is due to the length of this shaft. Another detail in connection with the set is that one of the sliding units S is on the mainshaft

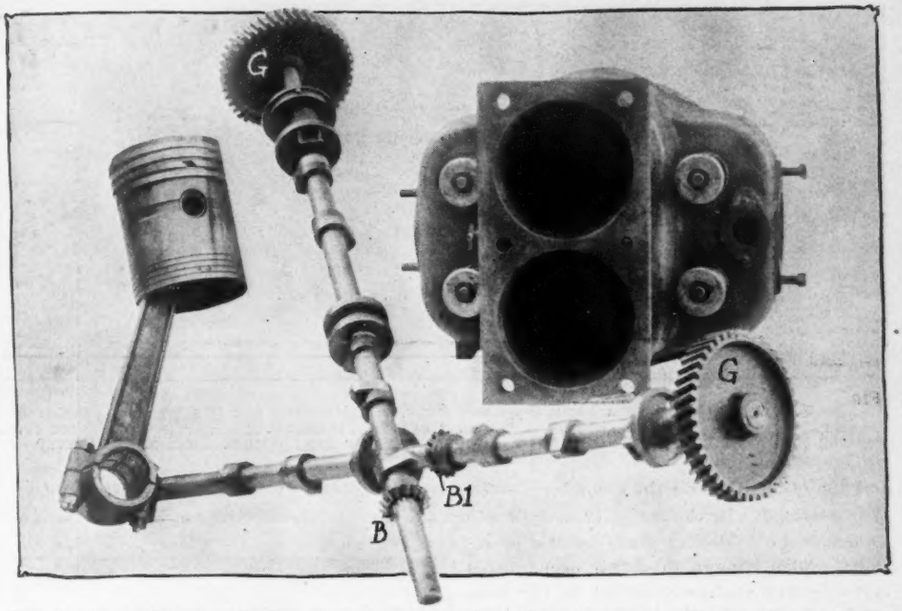
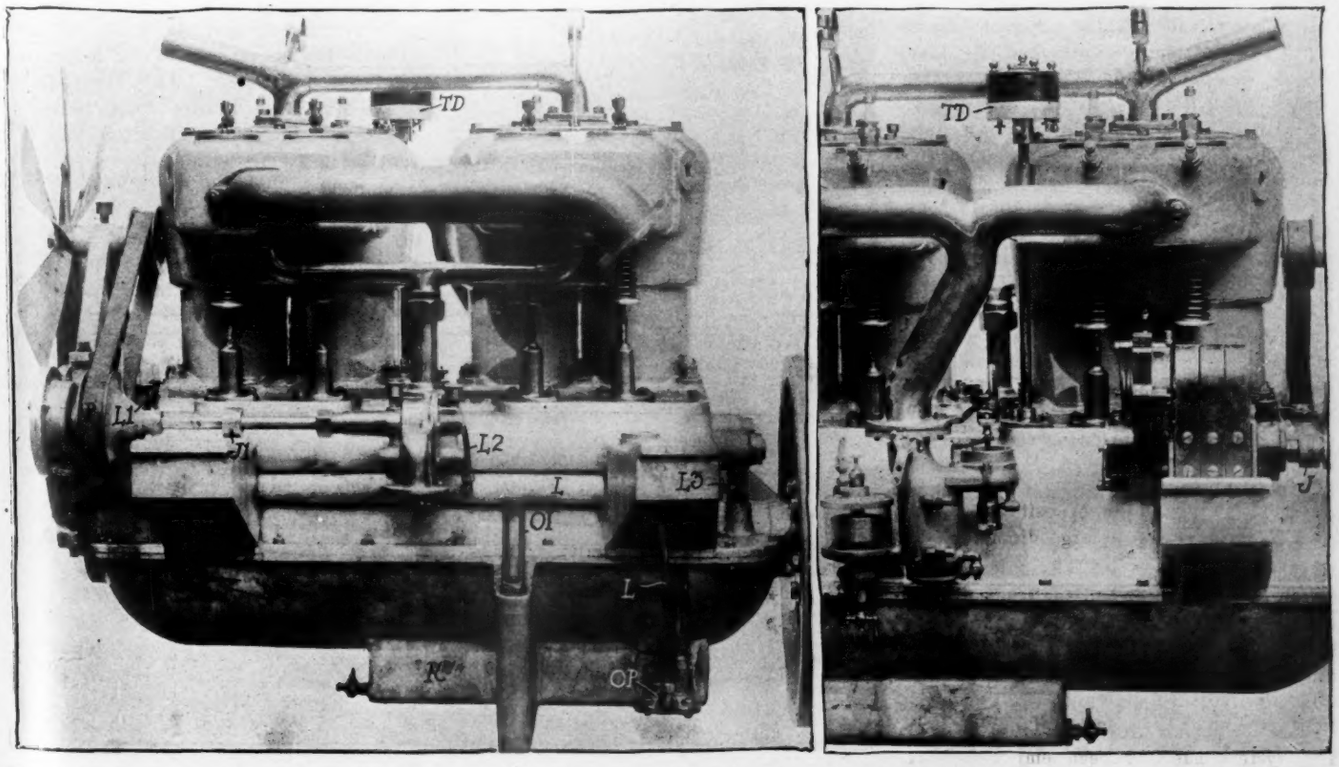


FIG. 3—IN THE CORBIN 40 TWO CAMSHAFTS ARE USED, BOTH CARRYING A SPIRAL GEAR TO TAKE THE DRIVE FROM THE CRANKSHAFT. THE CAMS ARE KEYED AND PINNED IN POSITION. GEAR B DRIVES THE OILER AND B1 THE TIMER-DISTRIBUTOR



FIGS. 4 AND 5—EXHAUST AND INTAKE SIDE OF THE CORBIN 40 MOTOR. ON THE LEFT SIDE ARE OIL PUMP OP, OIL INDICATOR OI, THREE OIL LEADS L1, L2 AND L3 TO THE CRANKSHAFT BEARINGS, THE JAW COUPLING J1 IN THE PUMP SHAFT AND THE OIL RESERVOIR R BENEATH THE CRANKCASE. THE MAGNETO AND STROMBERG CARBURETER ARE ON THE RIGHT SIDE, THE MAGNETO HAVING A COUPLING J IN ITS SHAFT

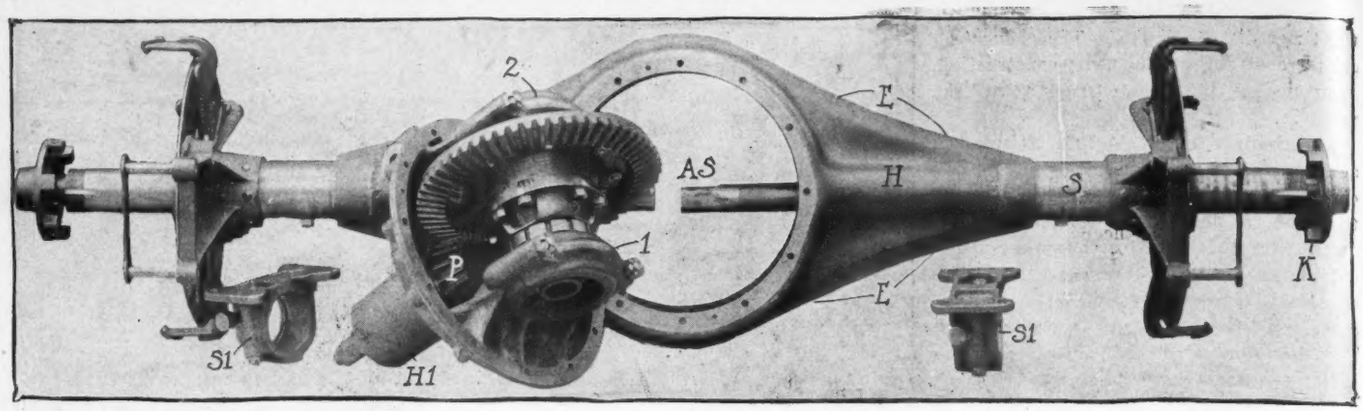


FIG. 6—THE CORBIN 40 USES A FLOATING REAR AXLE, THE HOUSING FOR WHICH IS A STEEL STAMPING H. MADE IN HALVES AND ELECTRICALLY WELDED ALONG THE EDGES E. A BEVEL GEAR DIFFERENTIAL IS EMPLOYED FOR THE FIRST TIME BY THE COMPANY. F & S BALL BEARINGS ARE USED THROUGHOUT IN THE AXLE. DOUBLE SETS OF REAR-WHEEL BRAKES ARE FITTED

and the other S1 is on the secondary shaft. It is customary in the majority of gearsets to mount both sliding gears on the mainshaft. This change in detail necessitates carrying one shifter yoke Y1 in the case proper, and the other Y in the cover. Direct drive is obtained by locking the sliding unit S with the master gear with four-jaw clutches on the opposing faces of these gears. From the gearbox to the rear axle a propellorshaft with two universal joints is used. Paralleling this propellorshaft is a torsion member.

Not to be overlooked in this new Corbin 40 is the floating type of rear axle which is a step forward in Corbin design. Up to the present the company has used semi-floating types. It is not, however, solely the fact of this being a floating axle as compared with the semi-floating that arouses all the attention—it is a complete new design. Fig. 6 shows the details. The housing H is a steel stamping made in halves electrically welded along the faces E. To this stamping is attached the stout sleeve members S on which the brake drums and wheels are carried. The differential with the driving pinion P is a unit in itself, and herein the Corbin shows its conformity to what is looked upon as one of the leading engineering details in conjunction with the rear axle. The driving pinion P together with the differential is mounted in a housing H1 which bolts into the stamping H in the circular opening. The differential may be removed by taking off the bearing caps 1 and 2 which hold the F. & S. ball races in place. The advantage of the unit construction of the pinion and differential is the facility with which they can be removed without interfering with the relationship of the pinion to the gear. The axle driveshafts AS may be withdrawn from the axle leaving the wheels in place. Each shaft carries a clutch K on its outer end for transmitting the drive to the road wheel. The spring seatings S1 are revolubly mounted on the axle. Before dismissing the rear axle attention must be drawn to Fig. 8 which shows the new type of bevel differential used for the first time by this company. The nest of bevel pinions 1, 2, 3, and 4, is carried between the stout halves S and S1 of the spider. Within the half S1 is shown the bevel B1 into which the axle driveshaft fits. The pinion shaft P is carried on two F. & S. bearings at approximately the positions Z and between them is a thrust bearing at T.

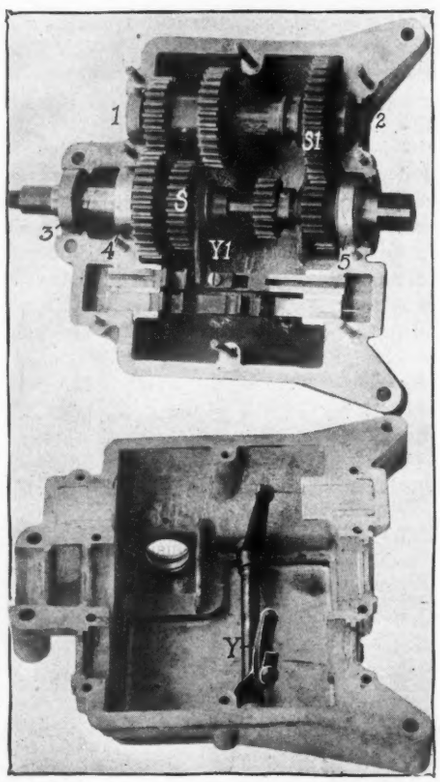


FIG. 7—A CHARACTERISTIC OF THE SELECTIVE GEARSET ON THE CORBIN IS THAT FIVE F. & S. BEARINGS ARE USED TO CARRY THE TWO SHAFTS. A FURTHER CHARACTERISTIC IS THAT ONE SLIDING UNIT S IS ON THE MAINSHAFT AND THE OTHER S1 ON THE COUNTERSHAFT

In general respects the running gear of the Corbin model 40 resembles that of previous Corbin types. The side members of the frame are inswept at the dash and raised over the rear axle, the latter to accommodate the three-quarter elliptic spring. The wheelbase measures 120 inches and the tread is standard. F. & S. ball bearings are used throughout with the exception of the motor.

The two Corbin models which are continued in the present season and known as models 18 and 30, both employ the same motor which is formed with separate cylinder castings 4½-inch bore and 4¼-inch stroke. These motors have five-bearing crankshafts. The ignition system is the same as that employed on the 40. In the motor lubrication oil is fed by an eccentric pump to the mainbearings of the shaft and through the crankshaft to the lower connecting rod bearings. As already stated in these motors, the three-speed gearset is a unit with the motor. The rear axle is a semi-floating type with ball bearings used throughout. Model 30 has 115-inch wheelbase, and is fitted with touring car and toy tonneau bodies. In model 18 the wheelbase is 120 inches and the same body style is fitted. On the model 40 chassis four door bodies are fitted optionally. This chassis is provided with touring car, torpedo, and limousine bodies.

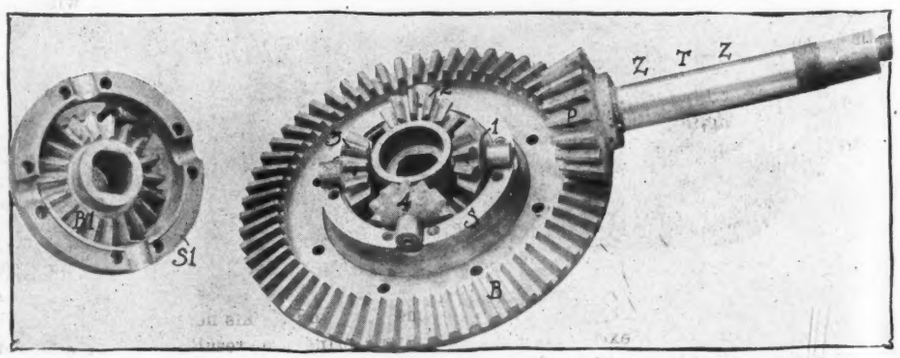


FIG. 8—IN THE CORBIN BEVEL GEAR DIFFERENTIAL THE SHAFT CARRYING THE PINION P IS CARRIED ON TWO F. & S. BEARINGS AT POINTS Z WITH A THRUST BEARING BETWEEN THEM AT THE POINT T

Manufacturers' Communications

NOT IN PALACE SHOW

CHICAGO—Editor Motor Age—The promoters of the forthcoming motor car show to be held at the Grand Central palace, New York, December 31, 1910, to January 7, 1911, persist in announcing in their advertising matter, circular and otherwise, that the Fal Motor Co. will exhibit at their show. We wish to take this occasion to deny this statement and to say that under no circumstances will this company exhibit at the show in question, either directly or through any agent, representative, or individual. This company's signature to a contract for exhibition space at the show in question was secured through misrepresentation, it being stated that the show was, or would be, a sanctioned one, and the promoters verbally stated to E. H. Lowe, the secretary of this company, at the time the contract was made that if they did not secure a sanction, no payment for space need be made and the contract would be cancelled. Notwithstanding the fact that misrepresentations were made and that no sanction has been secured, they persist in using the Fal Motor Co.'s name as above stated, without authority and regardless of the fact that we have requested them to cease doing so and have notified them that we would under no circumstances exhibit at the show in question.—Fal Motor Co., N. H. Van Sicklen, Sr.

WHITE FINDS PROSPERITY

Cleveland, O.—Editor Motor Age—A business trip starting with Chicago and including Des Moines, Minneapolis, Seattle, Tacoma, Portland, San Francisco, Salt Lake City, Denver, Houston, El Paso, Fort Worth, New Orleans, Atlanta and other cities in this territory shows me the prosperity of the farmer everywhere. Crops have been good and are good, the prices are good, too, and the farmer has the money. He is no longer the hand-to-mouth laborer, but a positive force in the financial situation, and he knows it. I was most particularly impressed with the condition of things in the newer states of the country, especially Texas and Oklahoma. Most of us have an idea that the farmers of this section are living in shacks without any of the comforts of our northern civilization, and for this very reason most of us have something to learn. It is simply astounding to see what really pretentious homes one finds on the majority of farms throughout the west and northwest. The homes are comfortably equipped with every modern appliance and the barns are filled with modern machinery and there is every evidence of real prosperity. In Texas the cotton crop was exceptionally good and the price is high, so these farmers are very enthusiastic about motor cars, which, of course, I was down there to find out about, it being my line. I believe that if more manufacturers and others who are vitally interested in the prosperity of their country would take a swing around the western states that I have taken, they could have no other feeling than enthusiasm for the motor car business or any other business for the coming season. You cannot stop the farmer spending money; he has got it, knows what he wants and intends to get it.—Windsor T. White, president White Co.

ANOTHER GOOD MARKET

Cleveland, O.—Editor Motor Age—We all know that the south, southwest and west are in splendid condition, that the cotton, tobacco, wheat, oats and, in fact, all staple crops are excellent. We all know that the sugar yield is very surprising. But many northerners do not realize that these sections of our country are learning to care for this prosperity, to make it yield additional benefits, to keep it at work right at home the entire 12 months of the year. But that is exactly the real condition of affairs. This opinion is not snap judgment, but is arrived at after my several trips, covering Boston, New York, Washington, Baltimore, Richmond, Atlanta, Birmingham, Memphis, New Orleans, San Antonio, Houston, Galveston, Little Rock, St. Louis, Kansas City, Omaha, St. Paul, Minneapolis, Milwaukee, Chicago, Dayton, Cincinnati, Louisville and numerous other points. Business created in the west, southwest and south is doing more for those sections of the country than it ever has in the past. People living there are investing in land, erecting buildings, starting manufacturing enterprises, publishing magazines and in many other ways showing what a vast power they can wield. —F. B. Stearns, president F. B. Stearns Co.

VALUE OF TRUCK TESTS

Lima, O.—Editor Motor Age—As to whether motor truck tests are beneficial to the manufacturer as well as to the customer, there is a great diversity of opinion. The manufacturer whose truck wins, whether it be on actual merit or because the other fellow says "he was lucky," will tell you that it certainly pays; a large number who lose but still make a fine showing also think it pays, and those who are clear out of the running or do not enter, will naturally say that it does not pay.

Of course I am heartily in accord with the idea and thought that the real motor truck contest is the one which proves to the customer and all his neighbors how his truck will bring him results from an economical standpoint; what is going to be the saving in his delivery system; how much it is going to be the means of increasing his business, etc., and above all, what the cost of maintaining a truck is. But to give an answer to these questions a motor truck contest of 2 days' duration is not going to afford much light.

In my opinion a contest based mainly upon the cost of fuel per ton mile is entirely wrong. Trucks may finish in absolutely perfect condition from a mechanical standpoint, but they may have consumed a little more gasoline and oil than some other makes whose tires were badly worn during the contest, and on a fuel cost basis the mechanically perfect truck would lose. It seems to me that we should give the prize to the truck which is ready for the next day's work without any repair costs, or to the one which needs the least expense to put it in absolutely perfect shape.

The recent Chicago-Milwaukee endurance contest brought out two other points, however. Particularly important was the awakening of merchants in Milwaukee to the fact that here was a large number of trucks carrying merchandise to their city and back again, a distance of over 200 miles, and on highways, in less time than the same service could be rendered by express companies, with the handling of the merchandise but twice: the loading and unloading. This goes to prove that motor trucks will cut quite a figure in the handling of fast freight for distances up to 100 miles. We have had local examples of this work in the case of people who moved from one town to another, utilizing our large motor trucks, so that the handling of their household goods was less damaging than if the goods had been loaded in a freight car.

Just at present there are too many business men who hope to buy a 5-ton truck at a 3-ton price, and finding this impossible they will purchase a 3-ton truck and ask it to carry a 5-ton load. Both business men and manufacturers suffer under those circumstances. The business man should listen to some good expert before he places his order. He should find out exactly what his needs are, and what kind of a truck and what size he should purchase. We need men among the manufacturers who will have the courage to tell a customer frankly that he should not buy such and such a size truck, with good and substantial reasons for that statement. Then, if the customer insists on purchasing a truck that is not suitable, the manufacturer should refuse to take his order. As it is now, the manufacturer is losing his profit and prestige in many cases, and the business man is losing most of his investment.—B. A. Gramm, General Manager Gramm Motor Car Co.

RELIABILITY Run Corrections—In the report of the tire competition in the Chicago reliability run as to the equipment of the Molines an error was made. Goodrich tires were used on all three Molines and two of them had perfect tire scores. Also the Cunningham was charged 1 point as a road penalty whereas the winner of the Standard Oil cup had a perfect road score.

Bulldog Reaches New York—The Abbott-Detroit Bulldog has reached New York city and is now headed for warmer climates. In some places in central New York the roads have been torn up for miles for repairs, leaving a mere pan of quaking half-frozen mass of mud through which the car had to plow up to the hubs and in the main streets of Waterloo and Seneca Falls, N. Y., the conditions rivaled even those of Kansas in its harshest days. An idea of the conditions of this part of the country may be obtained when it took the Bulldog 3 hours to travel 5 miles.

Virginians Co-Operate—With the view of building a new motor road in Virginia, which will connect Richmond and Newport News, the motor clubs of the two cities are looking after the effecting of an organization which it is thought will be completed by January 1, and ready to begin actual work. The distance between the cities is just 86 miles and a route has been mapped out which will make the trip one of but 4 hours by motor car. The route as planned is from Richmond to Seven Pines, then by way of the Williamsburg road to Toano, thence to Halsey's Point and on to Newport News. This way eliminates several miles of roundabout roads. Newport News and adjacent cities and towns agree to take charge of the roadwork through the counties of Warwick, York and James City if Richmond will look after the remainder.

Ohio Road Building—Within the past few years there has been a concerted movement in all northwestern Ohio counties to correct the abuse and waste of the people's money in reference to road building. The accompanying illustrations show the way the road looks after it has been constructed and the manner in which it is done. The roads are what are known as water-bound macadam and are built in two courses. The first course is of crushed limestone macadam, 5 inches thick and then rolled with a 10-ton steam roller. Over this a layer of stone dust is thrown with spreading motion until all voids have been filled. On the top of this is placed a layer of limestone about 4 inches thick and treated in the same manner as the first layer. This course then is sprinkled and rolled until a wave of grout is formed under this roller. This makes a road in which all the rock will stay in place and is perfectly smooth and hard, and ready for immediate use. The stone dust with the sprinkling and rolling acts as a sort of cement and the road is as smooth as a paved street. These roads are being built under the Garret law, which provides that the township pay two-thirds of the cost and the abutting property owners within a radius of 1 mile one-third. The cost of construction will average about $3,300 per mile.

BIG 10-TON STEAM ROLLER AT WORK ON OHIO ROADS

From the

New Home Nearly Ready—Work on the $15,000 clubhouse of the Milwaukee Automobile Club is progressing rapidly and it will be ready by the date originally specified, December 31. On the evening of New Year's eve the club will hold a big house-warming for members and families, and a short time later there will be an official reception to which the motoring clubs of the United States will be asked to send representatives.

Canadians Will Help—The Canadian provinces of western Canada, especially British Columbia, Alberta, Saskatchewan and Manitoba, have been asked to cooperate with British Columbia in the construction of a trunk line highway from Winnipeg to Vancouver. British Columbia already has plans laid for the construction and completion of its share of this road. Alberta is well along, and the matter has been taken up in the other provinces mentioned. This will mean within the next 3 or 4 years a transcontinental highway that will connect with the Pacific highway project of Vancouver, all the way down the coast to the republic of Mexico. When these highways are completed, it will give the longest continued stretch of first-class road that has ever existed in the world. It is conservatively estimated by prominent officials that this road will draw more money to the Pacific coast than all railroads combined.

Get Oil-Tight Mud Pans—The Automobile Club of Maryland has cautioned owners about not having oil-tight mud pans under their cars, in consequence of which the smooth streets of the city have been smeared with heavy oil and gasoline. The club calls attention to the fact that if motorists do not exercise care, people of the city will become tired of the carelessness and have the legislature pass a law making the offense a misdemeanor.

Swiss Triptyques Good for Year—The touring board of the American Automobile Association has been notified by G. A. Pos, secretary of the Ligue Internationale des Associations Touristes, that beginning January 1, 1911, Swiss triptyques for foreign tourists will be good for 1 year instead of for 6 months only, as heretofore. This step on the part of the Swiss government brings the Swiss triptyques into uniformity with those of the other nations of continental Europe, and will be a great convenience to American tourists. Meas-

NEW ROAD IN NORTHWESTERN OHIO THAT IS PRACTICALLY FINISHED

Four Winds

ures for securing this change in the regulations were undertaken by the Touring Club Suisse at the request of two successive congresses of the Ligue Internationale des Associations Touristes, of which the American Automobile Association is the American member, and the change is therefore regarded as a victory for the allied associations. It is in furtherance of their policy of simplifying the customs formalities which tourists must pass through.

Fortune for Roads—According to present plans the counties of western Michigan will expend a quarter of a million dollars in 1911 in improving present highways and building new ones. Charlevoix county is raising $20,000 for the purpose and Grand Traverse county will spend $18,000 in the work. Grand Traverse completed 5 miles of main highway during the year ending October 1. Manistee will spend approximately $23,000 in the work during the coming year and Mecosta plans to use more than $10,000. Mason county is raising nearly $21,000 and Kent county will spend in the neighborhood of $50,000. Of this amount, $47,843.93 will be spent by the good roads district which includes the city of Grand Rapids and several adjoining townships. The other townships in the county are not in the district and will work independently. Of the entire amount spent in the district Grand Rapids city will contribute about eight-ninths. In Muskegon county the board of supervisors has authorized the raising of $42,729.80 for good roads. In other counties in western Michigan the amounts vary, but the total to be spent will exceed $250,000.

Boulevarding Louisville—Realizing the necessity of a boulevard to connect the center of the city with the parkways, connecting Cherokee, Iroquois and Shawnee parks, the Louisville Real Estate Association has instituted a campaign for the improvement and extension of Third avenue as the logical connecting link in the chain of boulevards. Motorists are deeply interested in the project and have indorsed the plan. It is proposed that traffic from the city should go out First, Second, Fourth or Brook streets to Brandeis avenue, where it would come in to Third avenue at the confederate monument. Thence going south over Park place, it would continue out to the intersection of Fourth avenue. It is then proposed to asphalt this avenue from there out to K street, thence to Central avenue. Third avenue has been asphalted recently from the monument to the parkway and also from Broadway to Ormsby avenue, and the gap from the latter street to the monument is to be entirely rebuilt within a few months, affording a connecting boulevard between the parkways and the center of the city.

Ohio's Road Report—According to the report of J. C. Wonders, Ohio highway commissioner, there are 86,861 miles of highways in the Buckeye state, of which 64,755 miles, or 78 per cent, are unimproved. In the improved class are 14,188 miles of gravel roads, 9,687 miles of macadam and 23 miles of paved brick highways. There was appropriated for state aid to counties in constructing roads $558,654.32, for the year ending June 30, 1910, an increase of $72,077.57 over the previous year.

Fighting Noises—The city council of Columbus, O., took the first steps toward eliminating street noises when it gave a second reading to an ordinance introduced by Councilman Baldridge seeking to compel the placing of mufflers on all motor-driven vehicles. The ordinance not only strikes at the noises of exhausts, but also at loud sounding bells and horns. Horns may not contain more than one tone and must be low, while bells cannot exceed 5 inches in diameter. The ordinance was referred to the judicial committee of the city council.

New Tags for Doctors—New identification signs have been provided for carriages and motor vehicles of physicians, which permit them to violate the traffic law when on hurried calls. The new tags will be a blue cross on a white field and will be ready for distribution in 10 days. These tags take the place of the enameled tags bearing a red cross on a white field. This is the insignia of the National Red Cross Society and it is declared that the board of police commissioners violated a federal law, as well as a law of the Red Cross Society by allowing physicians to use the red cross sign on their vehicles. Therefore the change.

Buys a Toll Road—The Baltimore and Frederickstown Turnpike Co. has accepted Maryland's state roads commission's offer of $100,000 for its road from Baltimore to Boonsboro, a distance of 63 miles. The stockholders of the turnpikes from Boonsboro to Hagerstown, 21 miles, also have accepted the roads commission's offer, making a total expenditure of $134,000. Included in the acquisition are all bridges, culverts, rights of ways and other appurtenances. Chairman Tucker says that this means that in the near future all toll gates from Baltimore to the far western Maryland will go. This total roadway from Baltimore to Oakton, Garrett county, is 172 miles and will be graded and resurfaced just as soon as the remainder of the way is purchased. Maryland will then have the credit of taking the first steps in making possible the great national project of a smooth and free public roadway from ocean to ocean.

The Motor Car Repair Shop

Hints for the Amateur

IN laying up the motor car for the winter, the storage battery, if there be one, should not be overlooked. It should not be allowed to stand in a discharged condition; but should receive an occasional freshening charge at intervals of not less than every two months, and preferably once every six weeks. The freshening charge should be at the minimum rate, which is generally stamped on the name plate of the battery, and should be continued until the battery gases freely. This is the simplest and perhaps the best way to take care of a battery when it is not in actual service, as the battery will always be ready for immediate service when needed. There is, however, another method of preparing storage batteries for a long rest, which is as follows: First place the batteries on charge, fully charge them, then pour out the electrolyte and fill the battery with distilled water, obtainable at almost any drug store. Next place the batteries in circuit with a resistance or water rheostat and discharge at 3.5 amperes. Empty out water from cells and allow them to stand open until thoroughly dry. Place them in a cool and dark place, taking care that no foreign substance is allowed to get into the cells to form a short circuit. To put the batteries in service again, fill the cells with electrolyte of 1.180 specific gravity and place on charge.

Charging Instructions

If an ammeter and rheostat, or resistance are not to be had, and charging is to be done from a 110-volt direct current, lamps may be used as arranged in the illustration, Fig. 2, which shows six lamp receptacles in multiple or parallel. As a 16-candlepower 110-volt lamp consumes, approximately, ½ ampere, and a 32-candlepower 110-volt lamp 1 ampere, to obtain 3 amperes it will take six 16-candlepower lamps, or three 32-candlepower lamps in parallel. And in the same way, for 1.5 amperes, three 16-candlepower lamps in parallel are required. The same method may be followed on direct current circuits of other than 110 volts, with lamps adapted to the voltage of the circuit to be used. For instance, with a 220-volt circuit, a 16-candlepower 220-volt lamp will allow approximately ¼ ampere to pass through it, requiring twelve lamps for 3 amperes; and as a 32-candlepower 220-volt lamp would consume about ½ ampere, six such lamps would furnish the required resistance for a 3-ampere current. Great care should be taken that a battery is charged in the right direction, for if the connections are reversed, with the positive wire of the charging circuit connected to the negative terminal of the battery, which is marked —, or N, the battery will be injured.

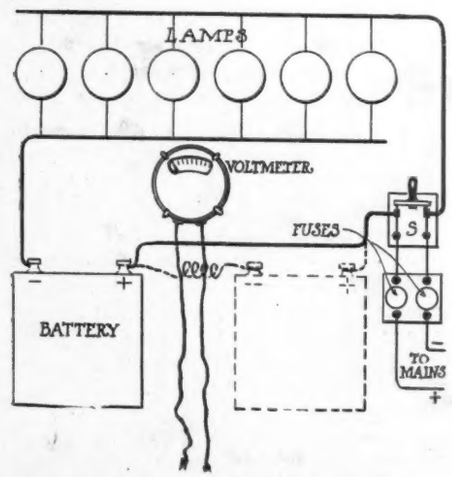


FIG. 2—A HOME CHARGING OUTFIT

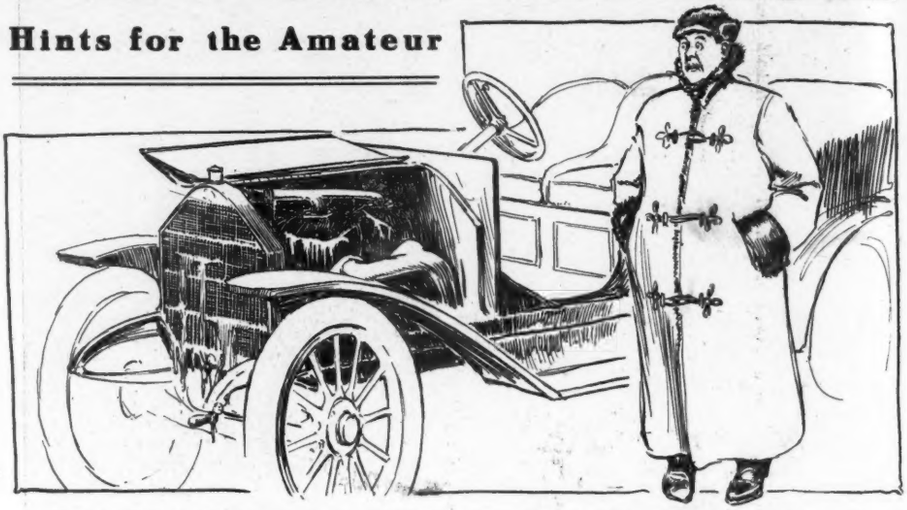


FIG. 1—NOT A CARTOON, BUT AN ACTUAL REPRESENTATION OF A FROST-BITTEN MOTOR CAR

ANTI-FREEZING SOLUTIONS

WOOD ALCOHOL SOLUTION

Percentage in water	Freezing point
10	18
20	5
25	—2
30	—9
35	—15
40	—24

CALCIUM CHLORIDE AND WATER

For each gallon of water	Freezing point
1 pound	27
2 pounds	18
3 pounds	—1.5
3½ pounds	—8
4 pounds	—17
5 pounds	—39

GLYCERINE AND WATER

Percentage in water	Freezing point
10	28
30	15
40	5
50	—2
55	—10

HALF ALCOHOL, HALF GLYCERINE, AND WATER

Percentage in water	Freezing point
10	25
20	15
25	8
30	—5
35	—15

A 10 per cent mixture of half alcohol and half glycerine means: 5 per cent alcohol, 5 per cent glycerine and 90 per cent water

On motors designed for water cooling, which have no rubber hose connections, kerosene can be as effectively used as a non-freezing cooling agent as any of the above mentioned solutions or mixtures.

Finding the Positive Wire

A simple method of learning which is the positive and negative wire, is to hold the ends of both wires about one inch apart under water while the current is turned on and bubbles will be seen to rise from the negative wire; obviously the other wire is the positive. The level of the electrolyte, a dilute chemically pure sulphuric acid, should be about ¼ inch above the plates, and its density should be tested occasionally with a hydrometer when fully charged and adjusted to 1.250 specific gravity, or 30 degrees Beaume. If the gravity of the electrolyte is low, take out some with a rubber bulb and add a stronger solution, not exceeding 1.400 specific gravity, or 41 degrees Beaume. If the gravity is too high, add distilled water, until the proper point is reached after mixing. The mixing takes place best while the battery is charging at the lower rate. When charging, always unscrew the rubber vents to examine the electrolyte and to allow gas to escape more freely; keep the vents clear of obstructions and do not bring a naked flame near them. The charging rate should never exceed the maximum of the 10 amperes for the 60-ampere hour battery; the regulation being obtainable by reducing the number or adding more or larger lamps to the charging circuit. The maximum voltage on charge should be, for a 3-cell, 6-volt battery, about 7.5 volts. If no low reading voltmeter is at hand, charge at the high rate until the cells gas, or bubble freely, and then cut down to the minimum rate until the cells again gas freely. In Fig. 2, a home charge outfit is illustrated, showing all wiring connections.

Current Motor Car Patents

Spark Plug Terminal Fastening—No. 976,100, dated November 15; to Albert Schmidt, Flint, Mich.—This patent relates to a spring snap terminal construction for spark plugs, by means of which the high-tension cables may be readily and securely attached or detached. As shown in Fig. 1, the terminal T on the end of the cable C is slotted longitudinally and is perforated so that it will fit the head H of the insulated terminal of the spark plug G. A little blade spring S is operatively positioned in the slot of the terminal T, so that when the terminal is slipped down over the head of the spark plug terminal the blade, which normally projects into the eye or perforation in the terminal T, engages the groove V in the stem or head of the spark plug and locks the terminal in place. The end of the spring is curved outwardly so that it may be easily disengaged from the groove when the removal of the cable terminal is desired.

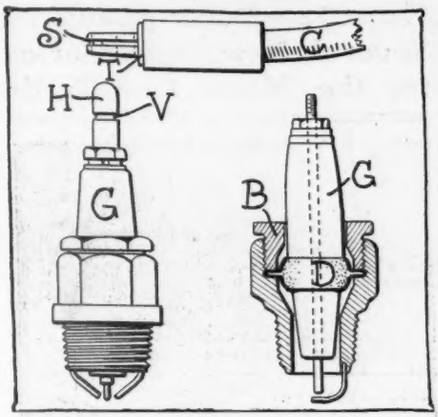


FIG. 1 FIG. 2

Starting Engine on Acetylene—No. 975,567, dated November 15; to Charles H. Oslund, Worcester, Mass.—This patent relates to an apparatus by means of which the gas from an acetylene generator may be employed for the purpose of starting the motor; and in view of the fact that the gasoline fuel supply is suffering a steady decrease in volatility, with consequent difficulty in the starting of motor car motors, especially when the engine is cold, inventions of this nature would seem to be a step in the right direction. As illustrated in Fig. 4, this apparatus comprises in combination with an engine such as is employed on motor cars, an acetylene gas tank containing gas under pressure, suitable piping and a distributer valve V for synchronously conducting the gas to the several cylinders of the engine, a cylinder C with a piston in it arranged in controllable connection with the main gas conductor, for the purpose of forcing the gas into the cylinders of the motor, a valve A communicating between this conductor and the main gas piping, and means whereby the piston in the cylinder C can be operated by foot from the front seat of the car, and the valve A automatically opened and closed.

Substantial Spark Plug Packing—No. 916,101, dated November 15; to Albert Schmidt, Flint, Mich.—This patent relates to a new spark plug design in which the packing is not only of a more substantial nature than that of the ordinary plug, but its design is such that the expansion which generally takes place when a plug is heated, and which is often injurious to the insulating material, is given a greater leeway. The shell of the plug is in two sections, Fig. 2, but the insulating plug G has an annular bead D which is embraced by flanges on the inner circumference of the packing ring. As the bushing B of the shell of the plug is screwed down onto the packing ring, which is in two parallel sections having opposing flanges, the flanges close in on the bead of the insulating plug and form a gas-tight support for it.

Frictional Air Compressor—No. 975,957, dated November 15; to Charles Avery Jaqua, Portland, Ind.—The air compressor to which this patent relates is illustrated in Fig. 5, in its relative position to the flywheel of the motor from which it is frictionally driven. It comprises a cylinder C rigidly supported in an inverted vertical position adjacent the motor flywheel, a piston therein, a lever L pivoted beside the cylinder, a crankwheel journaled in the free end of this lever, a connecting rod communicating between a pivot on the crankwheel and the piston, a cam K pivoted on the cylinder, and a pipe for the attachment of a hose or the like for conducting air from the pump to the tire, or wherever the compressed air is to be utilized. By drawing the free end of the arm A upward, the cam K moves the lever L and forces the friction wheel into engagement with the flywheel F.

New Screw Lifting Jack—No. 975,548, dated November 15; to Thomas H. Lovejoy, Chicago, Ill.—This patent covers a screw type of lifting jack which is extremely simple in construction, and so designed that it may be packed with grease and its moving parts not only protected from dirt but also thoroughly lubricated. Its construction is shown in Fig. 3 and it is a combination of a hollow base B having a removable cap C, a lifting screw L rotatively mounted on the base, a screw sleeve S slidably mounted in the upper portion of the base and on the screw, an operating shaft T journaled in the removable cap C, and co-operating bevel gears secured to the adjacent portions of the shaft T and screw L. At the base of the screw sleeve S there is an annular groove containing a removable segmental stop ring which is provided to limit the upward movement of the screw sleeve; and a plug is provided at P for the purpose of replenishing the lubricant.

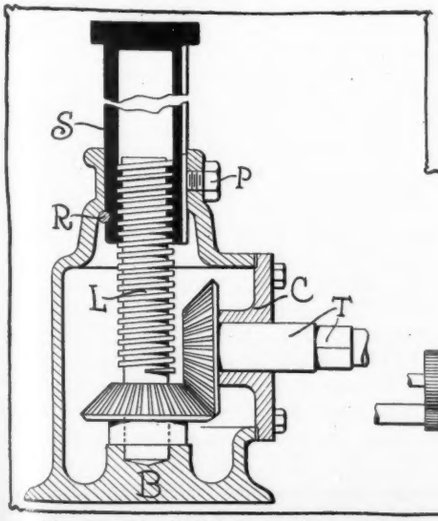


FIG. 3—SELF-LUBRICATING SCREW JACK

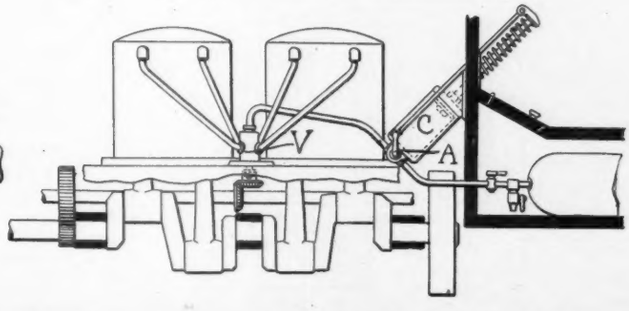


FIG. 4—TO START MOTOR ON ACETYLENE

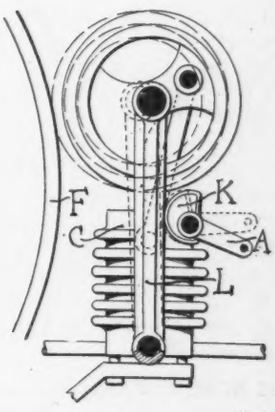


FIG. 5—AIR COMPRESSOR

Development Briefs

Concise Descriptions of Several New Accessories for the Motor Car Trade

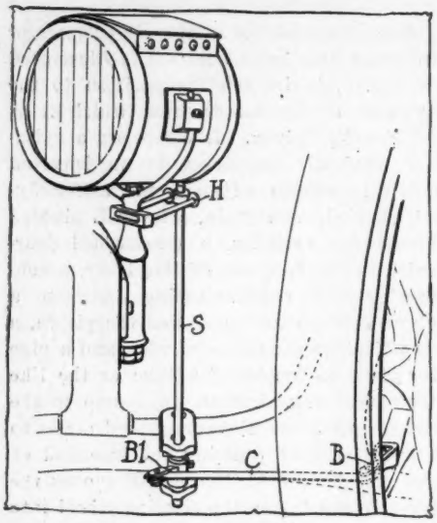


FIG. 1—PERSPECTIVE OF DEVICE FOR SWINGING HEADLIGHT ON MOTOR CAR

A MOVABLE HEADLIGHT

THE Scranton Automobile Equipment Co., Philadelphia, Pa., manufactures a device by which one of the headlights on a car can be made to swing with one of the front wheels, so that when the car is rounding a corner the light is turned at the same time and in the same direction as the front wheels, thus showing the road to be followed. This device is designed to connect to one headlight only, the other remaining stationary and always directing a beam of light straight ahead of the radiator. As illustrated in Fig. 1, this lamp control is as follows: On the steering knuckle is a bracket B, to the end of which is a connecting rod C. This connecting rod at its inner end unites with an arm at the bottom of the vertical shaft S. On the upper end of this shaft is a cross head H which connects with the lamp. As the steering wheel is turned to the right or left when turning a corner, a similar motion is imparted to the lamp. The manufacturer of this device has aimed at giving the lamp more of a right or left-hand swing than the front wheel of the car. The device is so set that when the wheels are deflected 30 degrees the lamp is deflected 45 degrees. This is accomplished by increasing the length of the arm on the bracket B, as compared with the length of the arm B1 on the bottom of the vertical shaft. This arrangement permits of utilizing to a greater extent the rays from one of the lamps on a short turn. In Fig. 2, a plan view, the complete working arrangements are shown.

THE BOSCH SPARK PLUG

The Bosch Magneto Co., New York, has announced for 1911 the continuation of its standard Bosch spark plug illustrated in Fig. 4. This plug consists of three essentials: A central nickel alloy electrode A through which the current from the magneto passes; a one-piece steatite insulator B; and a steel shell C which threads into the cylinder head. On its lower end the steel shell C carries four points D which come close to the end of the central electrode. In operation the spark passes from the central electrode to one of the opposite points D. The use of four points undoubtedly is due to the fact that after the current passes to one of them for a considerable time that point becomes heated, and as it becomes heated its resistance to the passage of the electric current increases, so that the current will stop jumping to it and follow the course of less resistance to one of the remaining three points. This detail avoids the possibility of the metal fusing and forming a bridge from the central electrode to one of the points D and so putting a plug out of commission.

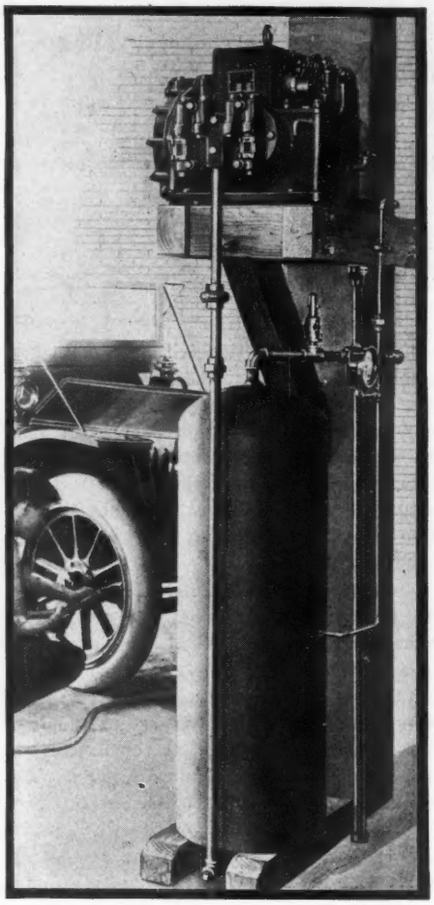


FIG. 3—A GARAGE TYPE OF AIR COMPRESSOR MADE BY ALLIS-CHALMERS CO.

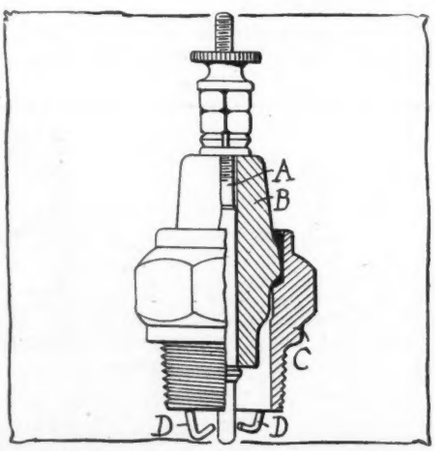


FIG. 4—BOSCH MULTI-POINT SPARK PLUG FOR 1911 SEASON

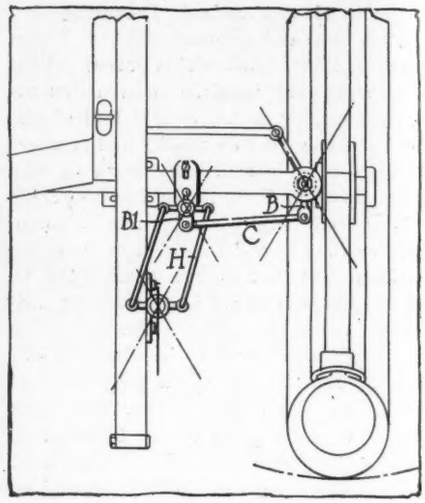


FIG. 2—PLAN ILLUSTRATION OF CONNECTIONS FOR SWINGING THE HEADLIGHT

ALLIS-CHALMERS COMPRESSOR

The Allis-Chalmers Co., Milwaukee, Wis., a manufacturer for years of motor-driven air compressors, has brought out a compressor for garage work, the same to be used for the inflation of tires, cleaning of cushions, or in the repair shop for blowing carbon out of cylinders, or operating a hammer. These outfits are built in two sizes: AA-1 delivering 11 cubic feet of free air per minute, and AA-6 delivering 16 cubic feet per minute. The complete garage outfit includes the storage tank, automatic governor, gauge, fuse and block switch, and hose with nozzle for inflating tires. These compressors have two cylinders, each provided with a single-acting piston. The crankshaft operating the pistons is driven by herring-bone gear from the armature of the electric motor. Motors suitable for direct or alternating current of any standard voltage can be had. In all cases the motor is bolted firmly to the compressor. The compressor can be arranged for belt-drive if necessary. The automatic governing device used maintains the air pressure at a constant mark at all

times, and by it the motor is started or stopped as often as may be necessary. This governor entirely eliminates hand control. In Fig. 3 is shown a garage outfit, with a vertical air tank, and with the motor and pump carried on a support above the tank. Fig. 5 shows the use of a horizontal tank carried on the wall of the garage, immediately beneath the motor support. The company has in addition a portable type in which the tank, motor and pump are carried on a small hand truck which can be run onto the sidewalk to inflate tires on a car standing at the curb.

GLASSO FOR WINDSHIELDS

The Motor Car Equipment Co., New York, is marketing the liquid, named Glasso, to be applied to the glass of windshields, headlights, mirrors, showcases, etc., to prevent their becoming fogged or covered with mist in damp weather. It is applied by rubbing the glass surface with cloth on which some of the liquid has been sprinkled.

COLLINS DIRECT DRIVE AXLE

The direct-drive axle, manufactured by the Collins Axle Mfg. Co., Pittsburg, Pa., is well illustrated in Fig. 7. This axle serves as a gearset and allows for direct drive on two forward speeds and also on the reverse. Its design is briefly as follows: On the propellershaft PS are two pinions P and P1. To the left of these pinions are two bevel gears B and B1, and to the right one bevel B2. These three bevels do not attach rigidly to the differential, but are connected therewith through two sliding clutches K and K1. Sliding the clutch K to the left so that it will engage with the bevel B will give direct drive on a 7-to-1 ratio, that is, for every seven evolutions of the propellershaft there would be one of the bevel B. Moving the clutch K to the right locks the bevel B1 to the differential, and gives a driving ratio of 3½ to 1. Moving the clutch K back into the neutral position, in which it is shown, and sliding the clutch K1 to the left, so that it will engage the bevel B2, gives reverse. On reverse the gear ratio is 7 to 1. The operation of the two clutches K and K1 is under the driver's control. Both clutches are mounted so as to rotate with the axle driveshafts AS, and these clutches are the mediums for locking the bevel pinions B1 and B2 to the differential housing D. This housing is carried on annular ball bearings at either end. The Collins company reports a recent test on this axle by the Westinghouse Air Brake Co., in which it showed 98 per cent efficiency on all speeds with a 10-horsepower or over motor.

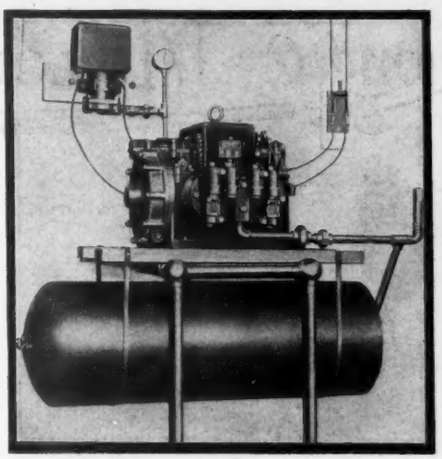


FIG. 5—ALLIS-CHALMERS AIR COMPRESSOR

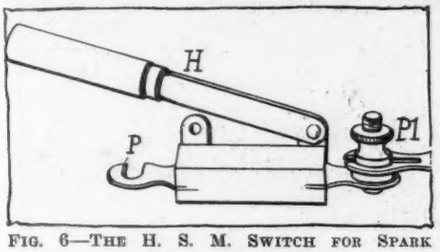


FIG. 6—THE H. S. M. SWITCH FOR SPARK PLUG TESTING

There are several interesting details of construction in this gearset. The propellershaft PS is carried on two races of ball bearings marked 1 and 2, so that the pinions P and P1 are carried between these bearings. The bevel B2 runs on a plain bushing, as shown at C. The bevel B is similarly supported. The bevel B1 is supported on a bushing at the point C1. By the use of an additional set of pinions, P2 and P3, the different series of ratios can be had from the same axle, by simply reversing the position of the set when inserting it in the housing H2. Using the pinions P2 gives a ratio of 2 to 1, and the pinion P3 6 to 1.

H. S. M. SWITCH

The H. S. M. Auto Switch Co., Philadelphia, Pa., manufactures the H. M. S. switch, Fig. 1, which is intended to be attached to the spark plug at the point P and at the point P1 connects with the high-tension lead from the magneto or coil. The sole purpose of this switch is to quickly determine, if there is a missing cylinder, whether such miss is due to foul plugs, or other causes, as well as to rapidly determine which is the offending plug. The cylinders can be separately tested by opening the switch handle, as shown at H.

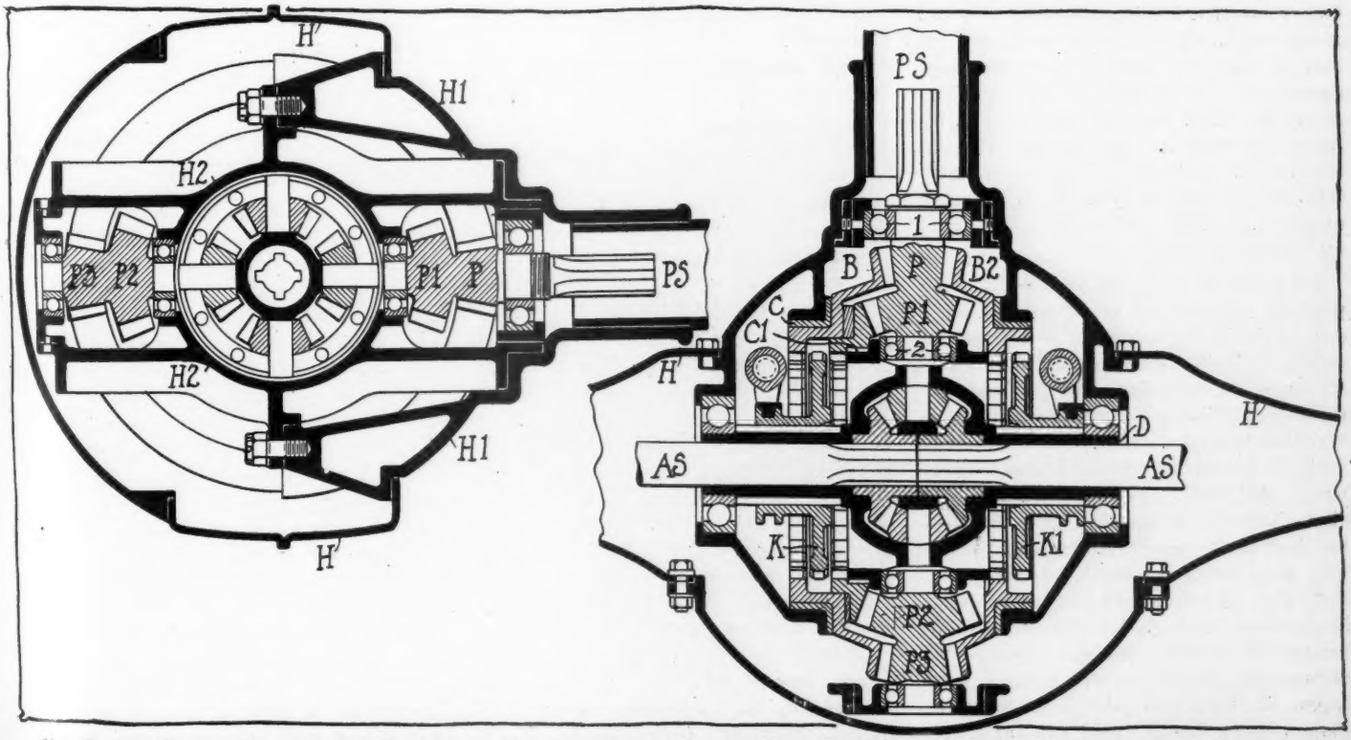


FIG. 7—THE COLLINS BEVEL DIRECT-DRIVE REAR AXLE AND GEARSET WHICH GIVES TWO FORWARD SPEEDS AND ONE REVERSE THROUGH TWO CLUTCHES K AND K1 IN THE DIFFERENTIAL

Among the Makers and Dealers

START FROM NEW YORK OF TRANSCONTINENTAL GOOD ROADS PARTY IN OHIO CAR

FIFTY-ONE Makes in Spokane—Thirty-one agents, representing fifty-one different brands of motor vehicles, ranging from the gasoline truck to the electric coupe, inhabit Spokane's row.

Washington Chooses Dates—The motor car dealers of Washington, D. C., have decided on the week beginning February 13 as the date for the annual motor car show. The show will be restricted to motor cars and accessories, leaving out aeroplanes and motor boats, which figured to a large extent in the last exhibition. The show committee will consist of W. C. Long, chairman; J. R. Thomas, secretary; J. M. Stoddard, treasurer, and the following directors: T. B. Spence, A. G. Carter, William Jose, Claude Miller, T. C. Johnston and S. A. Luttrell. The show will be held in Convention hall.

Show Problem in St. Louis—An independent show seems to be more than a possibility in St. Louis, following the decision of the St. Louis Dealers' and Manufacturers' Association not to hold the regular exhibit. At a meeting of the association held last week, there was a vote of 18 to 14 against the 1911 show. There were thirty-three members present, or about half the membership list. Many of the dealers are not contented, and persons who have made a thorough canvass report that about twenty are anxious for independent show. Others would join in the project if it is launched, and it is reported that in case definite steps were taken, at least half of the seventy-five dealers in St. Louis would ask for space. Many of the dealers declare the time is not yet ripe for St. Louis to abandon the show, and say that the great increase in the sale of cars in the last 2 years is directly due to the two successful exhibits.

Absorbs Buffalo Oil Co.—The Viscosity Oil Co. of Chicago has absorbed the Buffalo Oil Co., having large tankage and storage at Superior, Wis., the head of Lake Superior, and will greatly increase these facilities. Superior will be made the distributing point for a large territory in the Northwest.

Ford Opens Indianapolis Branch—The Ford Motor Co. has opened its new factory sales branch in Indianapolis, at 526 North Capitol avenue boulevard, in one of the reinforced concrete motor car buildings erected by the Globe Realty Co. A large number of cars are to be carried in stock, as well as parts for all Ford cars since 1906. Formerly the Ford has been carried in Indiana by the Gibson Auto Co.

Two Shows for Cleveland—As a result of the incorporation of the Cleveland Automobile Dealers' and Manufacturers' Association during the past week Cleveland will have two shows in 1911, the same as in 1910. The association will hold its show in Central armory during the week of March 13. This will allow at least 1 week intermission between the two shows, the other being that of the Cleveland Automobile Show Co. The new corporation includes mostly those dealers and manufacturers who participated in the second show of 1910. The committee consists of Ray M. Colwell, chairman; W. H. Barger, treasurer; Harry Smith, M. B. McLauchlin and A. R. Twelvetree. Applications for space have already been made by twenty-six exhibitors. Spaces will be awarded by drawing, as was the case last year.

Another Winton Branch—The Winton Motor Car Co. has established its own permanent branch house at 3328-3330 Main street, Kansas City, with George Arbuckle as manager. This establishment is the twelfth Winton branch.

Cincinnati Chooses Dates—The Cincinnati Automobile Dealers' Association has definitely decided to conduct the 1911 show in Cincinnati during the week of February 20 to 25 in Music hall. The association has placed the show proposition in the hands of a committee consisting of Edward F. Herschede, chairman; H. T. Boulden, secretary; H. S. Leyman, R. C. Crowthers, W. G. Welbon, Frank H. Miller and E. F. Kruse.

Changes in Spokane—The outlook in Spokane, Wash., is better than it was a few weeks ago and the dealers begin to feel satisfied with the conditions, expecting as good a season in 1911 as in 1910. The agencies have been changed a little, M. J. Healy, of the Pacific Motor Car Co., securing the Hudson agency for 1911, while Manager Harry Bell will handle the Locomobile. L. D. Hewett, for 3 years connected with the Standard Auto Co. in Spokane, and lately with the Eastman Motor Car Co. of that city, has entered the brokerage business, entering the Spokane field as a free lance, selling a dozen different cars on commission.

Ford's Crane Way—The crane way building is the latest addition to the many buildings at the new factory of the Ford Motor Co., at Detroit. It's a mammoth storeroom, 860 feet long by 57 feet wide. Here all raw materials for use in the manufacture of the Ford car are to be stored immediately on their receipt from the railway freight cars. Running the entire length of the building is a huge crane for transporting the materials from the railroad to any part of the storeroom. Long passages from the main factory building through the machine shop lead into the side openings of the crane way. Through these avenues the materials may be delivered rapidly and directly to the proper department, where hundreds of workmen are waiting, each to do his part in the handling of the material which is to be finally delivered in the form of a complete Ford car. At the present time the railroad passes but one end of the crane way, the northern end, but it is expected that a branch from the main line will in the very near future be run along the southern end of the building so that

before long the crane way will serve a railway at both ends and thus facilitate the loading and unloading of the immense amount of raw material that is daily brought to the Ford factory.

Valentine Succeeds Conde—The Automobile Dealers' Association of Syracuse, N. Y., at a meeting of its board of directors elected John H. Valentine treasurer to succeed Harry Conde, who resigned to leave Syracuse and engage in the business elsewhere.

Has Marion in Indianapolis—The Marion Sales Co. has become general distributor for the Marion line and will make its headquarters in Indianapolis. The distributing company has been organized by James E. Kepperley, E. A. Brown and J. O. Vanier and has been incorporated with an authorized capitalization of $10,000.

Gilbert Starts Suit—The Gilbert Mfg. Co., of New Haven, Conn., has filed a bill of complaint in the circuit court of the United States against the B. E. Mfg. Co., of New York city, asking for an injunction and an accounting. The complaint alleges that Fredson E. Bowers was the original inventor of improvements in spare tire cases, covered by patents issued to him and by him assigned to the Gilbert Mfg. Co. It is alleged that the B. E. Mfg. Co. is infringing the complainant's rights under the letters patent.

Two Shows at Pittsburg—Preparations for the two shows to be held in Pittsburg next spring are going forward rapidly. The regular show committee has signed up contracts for a large proportion of the space in Duquesne garden. The Automobile Owners' Association of Pittsburg, which is putting on this fifth annual show, has decidedly better prospects for a successful exhibition than it had 1 year ago. The independent show will be put on in March by the Pittsburg Automobile Show Association, Inc., which has been formed by thirty leading dealers of Pittsburg. Thomas I. Cochran has been appointed manager. The association has established offices in the Union Bank building and its show will be held in Exposition hall.

HOME OF CRESCENT CITY AUTO. CO. OF NEW ORLEANS

Changes in Columbus—There is considerable activity in garage circles in Columbus, Ohio, and many changes are announced for the coming season. Oscar Lear has awarded the contract for a garage and repair room on East Long street which will be ready for occupancy about the holidays. The Curtin-Williams Co. is erecting a sales agency and garage on North Fourth street, where it will handle the Cadillac and Peerless. The garage on Parsons avenue formerly occupied by the Curtin-Williams company will be conducted by Vincent & Echart. A reorganization of the Love Garage Co., at Sixth and High streets, probably will be effected soon. The Love company is now being operated by a receiver. The Hudson company, formed by Levi R. Smith and others to handle the Hudson in central Ohio, has opened on North Fourth street near Spring. The Cummins Auto Co., central Ohio agent for the Elmore, is on a large room on North Fourth street.

Stewart Succeeds Carples—At the last meeting of the Licensed Automobile Dealers of New York City, Charles A. Stewart was elected general manager to succeed James M. Carples, who resigned to go with the Daimler Import Co. Mr. Stewart formerly was assistant educational director of the West Side Young Men's Christian Association.

Portland Dealers Celebrate—The Portland Automobile Dealers' Association held its third annual banquet at the Portland Commercial Club. Seventy-five dealers, representing practically every car sold in Portland, were present and celebrated the completion of the best year that the industry has known in Portland. The toastmaster of the evening was Charles F. Wright, president of the association. The guest of honor of the evening was E. Henry Wemme, the leading spirit in the industry in Portland since its inception.

Portland Changes—A number of trade changes have been made in the past few weeks in Portland, Ore. The Auburn Motor Car Co., of which Robert Simpson is the president, was given additional territory, and now Simpson is made practically a northwest manager of the factory. Montana, Idaho, Washington and Oregon are controlled by the Portland branch, and during the coming year more than 500 cars will be handled out of that city. The Diamond Rubber Co. has opened its factory branch in Portland at the new Haak-Burke building. The A. J. Winters Co. also has secured the agency for the Pennsylvania tire.

BRANCH OF THE GOODYEAR COMPANY IN CINCINNATI

Brief Business

WILKINSBURG, PA.—The Miller Automobile Co. has secured the agency for the Crawford.

Seattle, Wash.—The Seattle branch of J. W. Leavitt & Co., agents for the Dorris and Overland cars, has added the Kisselkar to its line.

Boston, Mass.—The latest car to be added to a local agency in Boston is the Correja roadster, which has been secured by the Lowe-Howard Co., Boston agent for the Krit.

Dayton, O.—G. B. Aldrich, sales manager, and H. W. Mason, head draughtsman, have resigned their positions with the Courier Automobile Co. and accepted similar places with the Dayton Auto Truck Co., which will engage in the manufacture of brewery trucks.

Fort Collins, Colo.—A. E. Evans has disposed of his interest in the Fort Collins Motor Car Co., H. L. Hawkins, who has been connected with a number of the leading motor car firms of the middle west, being the purchaser. The present firm name is Cowdin & Hawkins.

Waupun, Wis.—Edward Van Loo has started work on a large garage building to be 44½ by 84 feet in dimensions, with a foundation sufficient to carry additional stories. The walls are of quarry stone and the roof of steel. The garage will combine storage, repairs and livery.

Portland, Ore.—Pacific coast headquarters were opened in Portland the last week for the Schacht, which will be distributed from this point. Interested in the new concern are G. W. Brown, of Minneapolis, and C. Caruthers, formerly connected with the Schacht agency in Minneapolis.

Nebraska City, Neb.—J. H. Markel, Ford dealer for southeastern Nebraska, built a new garage during the summer, but already has found it too small. He has purchased two adjoining lots, and will construct additions, so that the building completed will occupy an entire half block.

New York—The United States Realty and Improvement Co. has sold to Charles E. Johnson the four-story garage building, 118 by 119, on the southwest corner of Broadway and Sixty-second street, at present occupied by the Rambler and White companies and the Firestone Tire and Rubber Co.

Montreal—The National Motor Co. of Canada, successor to the Wilson Automobile Co., has been appointed exclusive representative for the province of Quebec for the E-M-F Co. of Canada, Limited. The Wilson Brothers Motor Co. is now housed in the Forum, where it will feature as its leader the Franklin. The Girdwood Stockwell Motor Co. has been dissolved, F. B. Stockwell purchasing Mr. Girdwood's interest. Mr. Stockwell has opened a show room on St. James street. The Oldsmobile and other cars will be handled. R. F. Girdwood has been appointed branch manager of the Ford Motor Car Co, which has opened a Montreal branch office.

St. Louis, Mo.—The Cole Motor Car Co., 4125 Olive street, announces it has taken the agency for the Paige-Detroit.

Austin, Texas—A permit to do business in Texas has been granted to the G & J Tire Co., of New York. The principal office is at Dallas, and the capital is $10,000.

Cleveland, O.—The Velie Motor Car Co. has opened a branch at the salesrooms formerly occupied by the Cook Motor Sales Co.

Chicago—The Townsley-Comstock Motor Co. has opened sales rooms at 322 Michigan avenue, where it will handle products of the American Motor Car Co., of Indianapolis.

St. Louis, Mo.—Fred Campbell, who recently bought the accessory business of the Buick concern, has leased new quarters at 1127-29 Olive street, next door to the Missouri Motor Car Co.

Cleveland, O.—The Cleveland Timetest Co., which controls in this territory a puncture-proof filler for tires, has leased the building formerly occupied by Price Brothers, on Huron road, as its salesrooms.

Hartford, Conn.—The new branch of the Hartford Rubber Works Co. has been opened at the southwest corner of Nineteenth and Locust streets. O. O. Petty, until recently manager of the local Firestone branch, is manager.

St. Louis, Mo.—The Todd Automobile Supply Co. has been incorporated in St. Louis, with a capital stock of $30,000, to manufacture and deal in cars and supplies. The stockholders are J. V. Todd, Charles Peters and E. F. Gee.

Beaver Falls, Pa.—Samuel Creese & Son, of Beaver Falls, Pa., have moved into their new garage, 43 by 120 feet, on Seventh avenue near Fifteenth street. The building will house forty cars. The firm handles the E-M-F, Flanders and Studebaker.

New York—The United States and Mexican Trust Co., of the city of Mexico, has been appointed sales agent for the Lozier cars in the Republic of Mexico, and Pink McVeity Blackburn & Co., of Ottawa, Canada, will represent the Lozier line of cars in that section of Canada.

Hartford, Conn.—The Post & Lester Co. has planned for immediate construction a four-story brick building 100 by 40 feet which is to be used for the wholesale department. This new building is to be located across the way from the Packard branch on Allyn street which is in the heart of the business and shipping district. The wholesale department will not interfere with the retail store at 175 Asylum street.

St. Louis, Mo.—The Johnson Automobile Co. has signed up for the local agency of the Brush car.

St. Louis, Mo.—The McNish Electric and Supply Co. now has the agency for the Willard battery.

Atlanta, Ga.—The new branch of the F. B. Stearns Co., of which John F. Toole is manager, has headquarters at 30-32 James street.

Philadelphia, Pa.—Charles A. Oxley, sales manager of the Girard Motor Co., Philadelphia, has severed his relations with the company and will shortly establish an agency of his own.

Washington, D. C.—The Bergdoll Motor Sales Agency is the style of a new firm that has taken the agency for the Bergdoll. A salesroom has been established at 1222½ H street, N. W.

Branford, Conn.—The stockholders of the I & F Motor Car Co. met and organized and elected directors: Charles Bunnell, Richard Bradley, H. F. Jourdan; treasurer, Richard Bradley. The company has leased the front part of the old plant.

Philadelphia, Pa.—Local architects are estimating on plans by Architects Kahn & Wilby, of Detroit, Mich., for a $250,000 garage to be erected on North Broad street between Wood and Pearl streets for the Packard company. The structure will be of concrete, eight stories high, the lot to measure 72 by 165 feet. It is understood that a $200,000 concrete garage, 74 by 125

Recent Incorporations

Newark, N. J.—Prince Tire Co., capital stock $25,000; incorporators, Paul M. Pelletrean, Walter C. Shoup and John D. Prince.

Chicago—Columbia Garage Co., capital stock $2,500; motor cars and supplies; incorporators, John R. Anderson, F. H. Anderson and John H. Anderson, Jr.

Buffalo, N. Y.—Neal, Clark and Neal Co., capital stock $75,000; to manufacture and sell bicycles, motor cars and accessories; incorporators, O. L. Neal, H. B. Clark and R. E. Neal.

Wilmington, Del.—Courtney Tire and Rubber Co., capital stock $1,000,000; incorporators, Warren N. Akers, William J. Maloney and Millard C. Taylor.

Wilmington, Del.—Gyno Motor Co., capital stock $100,000; to manufacture, sell and deal in motors.

San Antonio, Tex.—Ranger Motor Car Co., capital stock $16,000; incorporators, C. C. Ross, L. R. Lilley and E. C. Lilley.

Lansing, Mich.—Detroit Motor Truck Co., capital stock $5,000; incorporators, W. W. Lake and E. D. Walker.

Cleveland, Ohio—Auto Transit Co., capital stock $10,000; incorporator, Harry L. Byerly.

Columbus, Ohio—Packard Taxicab and Auto Livery Co., capital stock $30,000; incorporators, Louis M. Gillespie, G. L. Sitgreaves, G. F. Castle, N. Hutchinson and A. Alexander.

Boston, Mass.—Kenneth Motor Co., capital stock $20,000; to deal in motor vehicles; incorporators, W. C. Marsh and H. Dietzman.

Announcements

feet, is to be built at the northwest corner of Eighteenth and Market streets for the Studebaker.

St. Louis, Mo.—The General Motor Car Co. has closed a contract for the Locomobile agency.

Philadelphia, Pa.—The Swinehart Tire and Rubber Co. is moving into its new branch at 320 North Broad street. Frank D. Wait is manager.

Memphis, Tenn.—The Premier Sales Co. of Tennessee has been organized to handle Premier cars in parts of Mississippi, Tennessee and Arkansas. F. D. Cerf is sales manager.

Utica, Wis.—Joachim Johnson has been appointed district representative of the Buick by the Hokanson Automobile Co., of Madison, western Wisconsin distributer. Mr. Johnson will make his headquarters at Stoughton, Wis.

Washington, D. C.—Two changes in electric agencies were made last week, the Detroit electric going from the Dupont Sales Co. to Emerson & Orme, while the Waverley was transferred from the Pope Automobile Co. to the Carpenter Auto Co.

Boston, Mass.—J. E. Savelle, who was manager of the Parry and Rainier agencies in Boston, but resigned some months ago, has secured a large building on Newbury street, which he is using as a garage, having formed the Motor Car Service Co.

Boston, Mass.—A. P. Underhill, who has the distinction of having handled one line of cars longer than any other dealer in Boston, having taken on the Knox in 1900, has moved from Columbus avenue to 885 Boylston street, where he is now displaying the latest Knox models. He has taken over a building in Cambridge for a garage and repair shop.

Chicago—The new Apperson salesrooms at Thirty-third street and Indiana avenue are now open, with A. A. Ainsworth as manager.

St. Louis, Mo.—Blico & Carr have purchased the interest of George W. Boogher in the Chicopee Motor Car Co., agent for the Stevens-Duryea.

Portland, Ore.—The Cartercar Sales Co. moved into its new garage the past week at Seventh and Oak streets. William Hull is the Portland agent.

Detroit, Mich.—Elmer J. Benson, late of the Goodrich company, has joined the sales forces of the Pennsylvania Rubber Co. and is assistant to George B. Gable, the Detroit branch manager.

Pittsburg, Pa.—The Federal Motor Car Co. of Pittsburg has the agency for the Oldsmobile in western Pennsylvania and West Virginia and has established subagencies in Oil City, Pa., and Erie, Pa.

Lake Mills, Ia.—The Winnebago Auto Co. has incorporated and is about to construct a garage 38 by 100 feet in this town. H. S. Sorenson is president and manager. The company will handle the E-M-F.

Milwaukee, Wis.—The Milwaukee Auto Supply Co., of Milwaukee, Wis., has opened one of the largest supply houses in the middle west at 127-129 Second street. Oscar F. Fischedick is president and J. D. Babcock is secretary and treasurer.

Milwaukee, Wis.—Waite Brothers, state agents for the Moline in Wisconsin, have acquired extensive garage, storage and repair shop facilities by moving from the former show rooms on Grand avenue, near Eighth street, to 685-689 Third street.

San Francisco, Cal.—The Reo Pacific Co. is the name of a new firm which is to handle the Reo in the northern California territory. Norman de Vaux is head of the new company and has established himself on Van Ness avenue in the old Corbin home.

Huntington, Md.—W. M. Frazier will handle the Buick and Olds for the 1911 season. Frazier is building a new garage and salesroom, which will have 6,500 square feet of ground floor space. This building will be ready for occupancy by January 1.

Harrisburg, Pa.—The new garage, which is now being completed on North Third street by the Rex Auto Repair Co., will be opened in a few days. The building has been remodeled and arranged to suit the business of housing and repairing automobiles. The garage is 105 by 210 feet, with an angle of 30 by 60, which will be devoted to repair cars and sundries.

Chicago—D. A. Roke, of Creston, Ill., and W. A. Cooling, of Wilton, Ia., have been appointed Falcar agents.

Baltimore, Md.—The Marmon agency in Baltimore is now in the hands of Walter Scott, 1127 West North avenue.

Cleveland, O.—E. T. Ross, for several years special sales representative of the Cadillac Motor Car Co. and more recently in the same capacity with the Velie Motor Car Co., has opened a factory branch here for the sale of Velie cars in northern Ohio.

Cleveland, O.—The Motor Supply Co., of which E. T. Horsey is manager, will discontinue business. E. T. Horsey has organized the Horsey Mfg. Co. and has plans already drawn for a new building where he will manufacture Horsey patches in quantities.

Cleveland, O.—R. H. Eckenroth, of the Weddell House garage, has accepted the Cleveland agency for Wilcox trucks. Eckenroth also has secured the local agency for the Haynes and has placed H. J. Dunn, formerly with the Kisselkar Co., in charge of this department.

Philadelphia, Pa.—Larger and more commodious quarters at 1304-1306 Race street have been secured by the Philadelphia branch of the Michelin Tire Co., which for the past 2 years has been located at Broad and Wood streets. C. W. Scott is the local manager.

Boston, Mass.—The Grabowsky Power Wagon Co. is the latest to be added to the agencies in Boston, salesrooms having been opened at 205 Pleasant street. This will be the New England headquarters of the company. H. L. Exstein is manager and S. M. Harmon sales agent.

New York—M. M. Bronner, of the Atlantic Motor Car Co., representative for the Stoddard-Dayton, has secured a plot of ground on Bedford avenue at St. John's place, Brooklyn, 130 by 112, on which he will erect a one-story building, 80-foot front, leaving 50 feet for another concern.

Omaha—C. L. Gould, manager of the Omaha branch of the Ford Motor Co., has contracted with the following new agents for 1911 cars: Glass & Evans, Cushing, Neb.; Johnson & Nelson, Newman Grove; Campbell Auto Co., Campbell; Lichliter & From, David City; Reeves & Linn, Madison; West Brothers, Wisner, and C. A. Darling, Lyons.

Boston, Mass.—J. F. Walsh, New England representative of the Oakland, is making his headquarters at 591 Boylston street, where the Rainier and Parry cars were formerly handled, the company having that agency having gone out of business. Mr. Walsh took charge of the Oakland interests when the dissolution of the Olds-Oakland branch took place.

Recent Incorporations

Chicago—French Auto Top and Supply Co., capital stock $10,000; motor cars, carriage and wagon tops, shields, etc.; incorporators, E. C. Watson, Charles H. Pegler and James H. Christopher.

Buffalo, N. Y.—Buffalo Motor Sales Co., capital stock $10,000; incorporators, Leon J. McCullough, John J. McCullough and Millard F. Tallmage.

Buffalo, N. Y.—Battery Emporiums, Inc., capital stock $50,000; to deal in motor cars, parts and electrical devices for same; incorporators, T. P. Meinhard, F. A. Johnson and G. Rolston.

Boston, Mass.—Columbia Tire and Top Co., capital stock $35,000; deal in motor vehicles; incorporators, Frank F. Wentworth and Richard A. Brine.

Columbus, Ohio—Bowling Green Garage Co., capital stock $10,000; incorporators, A. E. Royce, R. E. Bates, Robert Place, B. C. Harding.

Newark, N. J. — Brown-Sautter Motor Truck Co., capital stock $100,000; to manufacture motor cars, trucks, etc.; incorporators, J. E. Brown, G. Sautter and H. Sautter.

Newark, N. J.—Mackey Motor Co., capital stock $300,000; to manufacture motor cars, motor boats, engines, etc.; incorporators, J. C. Mackey, W. G. Jerolemon and E. M. Bateman.

Newark, N. J.—Remington Tire and Rubber Co., capital stock $100,000; to manufacture rubber products; incorporators, H. G. Remington, D. J. Reynolds and C. S. Cairns.

Legal Lights and Side Lights

BAY STATE ELECTION RESULTS

NOW that the election is over in Massachusetts some of the men closely identified with motoring are wondering just how much the industry had to do with bringing about the defeat of Governor Draper, the republican, and electing Eugene N. Foss, a democrat. That it had some there is little doubt, for the republican party was not noted for its liberality in framing laws governing motor cars. With a democratic governor in next year there will be a change in some important offices that may mean better things. Police Commissioner O'Meara, of Boston, will not be reappointed, it is thought, and the Boston motorists will not mourn for him. The highway commission will see a change in one of its members perhaps, and there is some hope that a liberal democrat will get a job. With the republican majority in the house and senate reduced somewhat, now there is a chance for amendments to the existing law that may be more equitable for owners of motor cars. The roads and bridges committee will have several new members this year and there is hope that there will be a better tendency toward using the motorists decently than has marked similar committees in the past. One of the measures that the Massachusetts state association will put up again is the lights bill which was brutally mangled by the last legislature, for which some of the legislators suffered because some of the motorists had good memories. Perhaps some of the other laws may be modified. An attempt probably will be made to get a good reciprocity law through. The effort that created so much havoc this year with the hotel trade was laid at the door of the highway commission, and the flight to Albany that resulted in causing Attorney General O'Malley to change his ruling was looked upon as evidence that the handwriting on the wall that seemed to spell defeat for the republican party and Governor Draper was being read. Governor Draper pushed the bill taxing cars according to horsepower through the legislature by what was characterized as steam-roller methods after it had been beaten 2 years successively. He asked for it in his annual message to the legislature and his request was obeyed. The motorists did not object to paying out more money to repair the roads, but they did want something to say as to the general features of the bill. They fought the graded fee tax, and wanted some recognition given the second-hand cars so that the men who owned them would not have to pay the full tax based on what the cars were rated at when new. It was no use. The motorists might just as well have been talking to a lot of mermaids as far as getting any action on their requests. Gradually they got sore and on election day there were a number of votes cast with the thought in mind of evening up old scores.

Members of the republican party said the motorists favored a law based on taxing cars according to horsepower, but those who favored it were men connected with the party who did not mind paying the tax, for they knew the real burden fell on the great majority of the owners of the second-hand cars. As other New England states watch Massachusetts and follow its footsteps in many laws, perhaps a few changes next year in the motor law will be beneficial all over New England.

GETTING READY TO WORK

The committee on legislation of the Milwaukee Automobile Club, recently reappointed by President Charles W. Norris, has already started work in preparation for the next session of the Wisconsin legislature in January. The committee will work in conjunction with the legislative committee of the Wisconsin State Automobile Association, which will lend its assistance in return when legislation affecting only the city of Milwaukee is on the boards.

The committees expect the busiest period since motorists of Milwaukee and Wisconsin organized at the next session of the legislature. It already is known that much restrictive legislation will be introduced, and that much of this will emanate from the Socialists, who elected nearly all the representatives from the various Milwaukee legislative districts. They are planning to push bills to limit speed even more than now; make jail sentences an alternative in convictions for speeding; making provision for fines or jail sentences upon those who attempt to escape after causing or participating in an accident, and similar measures.

The club will take the initiative in several important measures and will again attempt to have passed a bill abolishing all speed limitations and make reckless driving the sole cause for arrest. An overwhelming majority of citizens cannot or will not recognize the advantages of such a law over the present law fixing the speed limit at 12 and 25 miles an hour in city and country, respectively. It is pointed out that in many instances 7 miles an hour would constitute reckless driving, although no arrest could be made because the driver was within the limit prescribed by law. At other times 12 miles an hour in the city may be ridiculously slow.

Highway legislation will form the bulk of the state association's committee work. An effort will be made to provide for state highways and to increase the effect of present legislation concerning state aid in road improvement. The special legislative committee on good roads will make its report, based on a year's investigation, to the legislature at this time. Little trouble is expected in obtaining favorable legislation on highway matters.

SOLVE BAR HARBOR PROBLEM

Through the efforts of George B. Dorr, a retired business man of Boston, General Edward Morrell and Edward McLean, two wealthy residents of Washington, the controversy that has been waged for some years as to allowing motor cars on Mount Desert island is in a fair way to be settled. Bar Harbor, in Maine, and Nantucket, off the coast of Massachusetts, are two places where motor cars are prohibited from going by law. Many of the wealthy residents of Bar Harbor who own cars objected to their use in Bar Harbor because the road was narrow and it wound around a cliff so that if horses were met on the road and became frightened the results would be serious. But some of the Maine motorists fought against the exclusion on the ground that it was a precedent that other towns might later follow.

When the town voted to keep cars out after the legislature granted the town officials the right the question was taken to the supreme court and declared constitutional. But there has been some feeling since and schemes were planned to evade the law. This will all be done away with before next summer, it appears. Plans have been drawn up for a private road to the town that will cost about $80,000 and which will be used exclusively for motor cars. It will be across private lands and in no way interfere with any other roads, have no crossroads, and will not come under the jurisdiction of state or town authorities. More than half the $80,000 already has been subscribed for the purpose and generous subscriptions have been received from those who opposed the motor cars on the island. By means of the new road it will be possible for the wealthy residents who own cars to motor to their cottages or near there without interfering in any way with the horses.

NOT CONTRIBUTORY NEGLIGENCE

The United States circuit court for the southern district of Ohio has decided that a motorist driving a car at a speed of 15 miles an hour does not contribute to his own negligence if he fails to heed the warning of a motorman, even if the motorist is driving on the car tracks. The court in holding to this opinion, reversed the verdict of the lower courts.